~~ORTHODOX~~

~~HETERODOX~~

PARADOX ECONOMICS

Tuure Parkkinen

19 Counterintuitive Economic Phenomena and Common Misconceptions

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Reparodigm Publishing

Version 1.00

ISBN 978-952-7102-11-4 Paradox Economics (print - digest paperback)
ISBN 978-952-7102-10-7 Paradox Economics (eBook)

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For Viltsu.

"But one must not think ill of the paradox,
for the paradox is the passion of thought,
and the thinker without the paradox
is like the lover without passion:
a mediocre fellow."
– Søren Kierkegaard[1]

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I. Economics – What People Do with Resources

"As to the methods there may be a million and then some, but principles are few. The man who grasps principles can successfully select his own methods. The man who tries methods, ignoring principles, is sure to have trouble." - Ralph Waldo Emerson

Economics. People really hate it, don't they? My father, an educated and sharp chemistry teacher, says that his mind automatically shuts down at the sight of the first economics concept. There's simply an immediate loss of interest.

I wouldn't hop on board the conspiracy theories claiming that economics would be made purposefully dull and difficult-sounding to keep most people ignorant of how they are being ripped off and oppressed. However, academia has a tendency to perk up its authority by cherishing its jargon.

In any case, the apparent complexity of economics is a pity. Essentially economics is about how people behave in terms of allocating resources. This is Lionel Robbins's classic definition of economics:

> "[T]he science which studies human behavior as a relationship between ends and scarce means which have alternative uses."[2]

So, fundamentally, it isn't rocket science or quantum physics. Forming opinions and making statements about how people behave shouldn't be so difficult - neither should comparing those assumptions to real world data. Of course, it gets quite a bit more complicated when there are millions of people who are trying to predict each others' behavior and whose decisions all impact others' decisions.

In essence, most statements or claims about how an economy works are either

1. mathematical identities, i.e., *tautologies*, i.e., restatements of the same thing, or

2. claims about how people behave.

If we disagree about economic causalities – e.g. the possible impacts of certain economic policies – we are essentially disagreeing about how we expect people to behave.

Economics studies the impacts of different *incentives*: things that motivate or encourage people to do things.[3] Incentives are not purely restricted to financial rewards or hedonistic utility, pleasure. There are all sorts of things that people consider valuable, i.e., worth choosing.[4] We are also affected by e.g. moral and social incentives, and direct economic rewards might even diminish such other incentives. (People e.g. donate less blood when they get paid for it.[5]) There is of course variance in how well different economic theories are able to model such incentives.

Despite their abstractness, most economics terms and theories are actually quite useful – even in one's everyday life. The relevance or usefulness of many economic concepts is not even dependent on the existence of a market economy. Such concepts include "capital intensity", "costs of capital", "opportunity costs", and "comparative advantage". The first three of these are even relevant for Robinson Crusoe alone on an island.

Sadly though, the most basic and common concepts are often the most ambiguous ones: They might mean very different things in different contexts. Such examples are "capital", "value", "productivity", and "economic growth".

This book will present some basic economic concepts and clarify their different meanings. It will do so through the frame of economic "paradoxes". The Merriam-Webster dictionary gives the following definitions for a paradox:

> 1: a tenet contrary to received opinion
>
> 2 a : a statement that is seemingly contradictory or opposed to common sense and yet is perhaps true
>
> b : a self-contradictory statement that at first seems true
>
> c : an argument that apparently derives self-contradictory conclusions by valid deduction from acceptable premises
>
> 3 : one (as a person, situation, or action) having seemingly contradictory qualities or phases[6]

Many of the titles of this book's chapters express causal relations that might seem counterintuitive or even self-contradictory at first, but that are actually quite logical when we carefully examine the definitions of the terms and when we break the claims down to the incentives and actions of individual people. Other chapters, along definition 1, are simply careful refutations of conventional wisdom – the "poor man's economics", which we so easily take for granted, and which is often sustained by misleading mental images and moral biases. (See intro chapter III)

The title of the book is also a word play on the artificial division of economic theories into *"orthodox economics"*, as the mainstream of economic academia is often derogatorily called, and *"heterodox economics"*. Paradox Economics does not respect such ideological boundaries. Humans cannot properly perceive depth or 3-dimensional form without two eyes viewing the objects from slightly different angles, a phenomenon called *stereopsis*. Similarly, with more abstract things, we need multiple perspectives (e.g. theories, frameworks, languages) on them in order to understand their full depth and nature.

The titles of the chapters might sound a bit provocative. If you don't believe a title or you disagree, read the chapter. You might still not agree, but at least we'll have a clearer picture of what assumptions about human behavior it is exactly that we are disagreeing on.

You can start with the paradoxes that seem most intriguing or enraging. However, there are some story lines running through the chapters:

- Paradoxes 2-4 are tied together by the concept of productivity.
- Money and banking are explained through paradoxes 6-9.
- The special nature of land is explained though paradoxes 9-12.
- Paradoxes 14 and 15 discuss economic security on the level of the individual and the whole economy.
- Paradoxes 16 and 17 discuss foreign trade and exchange rates.

II. Political and Ideological Self-Deception: The Biggest Delusions of the Left and the Right

"Madness is rare in individuals - but in groups, parties, nations, and ages it is the rule." - Friedrich Nietzsche

"If something that makes no sense to you (say, religion - if you are an atheist - or some age-old habit or practice called irrational); if that something has been around for a very, very long time, then, irrational or not, you can expect it to stick around much longer, and outlive those who call for its demise." - Nassim Taleb[7]

The biggest trouble with economic discussion is that economic issues are highly politicized. Therefore, in economic issues, constructive, solutions-oriented discussion is nearly impossible. When the rules are set democratically, there is a lot to gain in tweaking the rules in one's favor. Rule setting can e.g. help sustain privileges, allow shifting costs onto others, and direct public funds towards those investments one most benefits from and to one's favorite suppliers.

However, a lot of this political struggle for gain has been disguised as ideology. These ideological fixations for or against certain policies have gone to the extent that people no longer even realize that e.g. their preferred mode of taxation is in fact in the interest of their interest group or a way to maintain the power of their political faction or the institution for which they are working. These ideologies allow sustaining even mathematically impossible perceptions of how things work and affect each others, i.e., *causalities*.

The author of this book is surely not free of any biases or emotional attachments. However, he claims to be able to point out sticky beliefs on both sides of the political spectrum – beliefs that either are illogical, contradict empirical evidence, or both.

A few of the biggest self-deceits of the political right are:

1. The implicit belief that total wealth can always be increased simply by saving up money more eagerly (see paradox 6)

2. That an increase in wealth is always a good thing (see paradox 10)
3. The assumption that the costs of capital are always positive (see paradox 5)
4. That income differences between industries and professions would be determined by differences in productivity (see paradox 2)
5. That companies have some kind of intrinsic utility for labor (e.g. claiming that they'll buy more labor if it just gets nominally cheaper, see paradox 7)
6. Blindness to the special nature of land: what land ownership actually means and why land isn't allocated efficiently in a "free" market (see paradoxes 11 and 12)
7. The mercantilist ideology that considers current account surpluses a sustainable source of wealth and where national economies are presumed to need to compete with each other like companies (see paradoxes 16 and 13)
8. Not wanting to see that government debt could actually be a source of public income if interest rates weren't kept artificially high (see paradox 19)

A few of the biggest self-deceits of the political left are:

1. That hardness is strength: the idea that sustainable security can be achieved by trying to prevent change (see paradox 15)
2. Neglecting the costs of capital, e.g. expecting others to be willing to carry risks for free (see paradox 5 and 18)
3. That income would be some kind of measure of a person's value or worth, and hence confusing "human equality" with "income equality" (see paradox 1)
4. The assumption that the one who "pays" a tax (or directly incurs some other forced increase in price, e.g. higher wages) will always end up carrying its costs (see paradox 12 and 18)
5. Failing to see how the privileges of some professions or union members usually come on the expense of other workers (see paradox 1 and 18)
6. Not understanding the role of competition (i.e., the

availability of alternatives) in keeping profits in check (13 and 18)

7. Not wanting to see the hyperinflation risks and instability caused by higher public debt and a higher amount of liquid credit on the market (see paradoxes 8 and 19)

In general, the political right tends to blame economic issues such as unemployment on structural mismatches caused by e.g. wage regulation and artificial recruiting risks, omitting the possibility that total demand (a.k.a. *aggregate demand*) might be lagging behind supply. (See paradoxes 5, 6, and 14)

The political left often wants to blame all kinds of unemployment on insufficient demand, calling for more fiscal stimuli and a bigger role for the public sector, downplaying the effects of possible structural rigidities. (See paradoxes 1, 15, and 18)

Currently, Western economies are plagued by *both* structural rigidity and overall demand chronically lagging behind supply. However, additionally, economic development is hampered and inequality increased unjustly by private monopolies and privileges, which neither the left nor the right wants to question. (See paradoxes 1, 10, 11, 13, and 15) Interest group politics tends to be reduced to clinging to achieved advantages.

Especially in the case of the eurozone, destructive trade imbalances are also sustained by the insane focus on maximizing national competitiveness. Economists since Adam Smith have agreed that this objective is unsustainable and unproductive. This is explained under paradoxes 16 and 17.

> **"It is difficult to get a man to understand something when his salary depends upon his not understanding it." - Upton Sinclair[8]**

III. Blinded by Language and Misled by the Moral Compass

"[W]hen it comes to solving problems, one of the best ways to start is by putting away your moral compass.

Why?

When you are consumed with the rightness and wrongness of a given issue – whether it's fracking or gun control or genetically engineered food – it's easy to lose track of what the issue actually is. A moral compass can convince you that all the answers are obvious (even when they're not); that there is a bright line between right and wrong (when often there isn't); and, worst, that you are certain you already know everything you need to know about a subject so you stop trying to learn more." – Steven Levitt & Stephen Dubner[9]

There are also moral biases that span across the political spectrum. One such moral fixation is the Protestant work ethic, which has dug itself deep into our intuition. Max Weber famously described how this moral code ascribing absolute value to work and frugality played a central role in the ascent of capitalism and in facilitating the vast investments of the industrial revolutions.[10]

The left, the right, and the greens all consider work and saving (frugality) to be inherently good and "consumption" and debt to be inherently bad. Only the emphases vary: The greens like to focus on demonizing consumption, the left on glorifying labor, and the right on the virtue of austerity.

This easily makes people forget that

- the economy as a whole mostly needs saving for real investment,
- in a closed economy, net saving is only possible *as* real investment, (see paradox 6)
- all investment is for production, and
- all production is for consumption.

Every supply chain ultimately exists to meet some consumer demand. Consumption, in the economic sense, essentially means utilizing or appreciating an end product or service.[11] Without consumption, all effort and resource spending is *waste*. As John Maynard Keynes put it:

> "All production is for the purpose of ultimately satisfying a consumer." ... "Consumption – to repeat the obvious – is the sole end and object of all economic activity."[12]

The confusion is augmented by the fact that, in ecology, "consumption" means using other life forms as a source of energy as well as by the everyday uses of the word, which imply deteriorating or destroying something. (If this does not make the word lovable enough, "consumption" is also an alternative name for the deadly disease tuberculosis.[13])

However, consuming jazz music does not destroy anything. Walking in a park is consuming its recreational services.

The other meaning of the word is "consumption expenditure", which essentially means spending money. And spending is essentially letting others earn their living and pay back their debts, as we'll learn. (See paradox 6) Neither economic meaning of consumption has necessarily anything to do with *using up* natural resources, though there is a strong mental link – and a historical correlation. (See paradoxes 4 and 14)

Money is likely the biggest victim of our confusing language. We speak of it as if it were some kind of physical substance that is somewhere and "flows" from one place to another. However, money is essentially a credit relation, and relations obey completely different laws than matter and energy do. Similarly, electromagnetic charges do not follow the laws of thermodynamics. Charges and credit relations can emerge "out of nothing", while that is much harder for energy and matter to accomplish.

These kinds of metaphors that are not explicitly stated but assumed in the expressions we use are called "conceptual metaphors" or "generative metaphors".[14] The misleading *conceptual metaphor* of money as an item or substance is behind many of the paradoxes and misunderstandings presented in this book. (See paradoxes 6, 7, 8, and 9)

Actually, the paradoxy (paradoxicality) or counterintuitiveness of many of the claims in the titles of this book's chapters is merely the result of prevailing misleading mental images or emotional and moral biases. Without these sticky (and often fundamentally illogical) preconceptions, the described phenomena and relations between factors would hardly be paradoxes at all. The book might be called "19 fairly self-evident things that economists tend to describe with complex-sounding terminology, and sometimes forget to tell people".

"Our life is the creation of our minds, and we do much of that creating with metaphor." ... "With the wrong metaphor we are deluded; with no metaphor we are blind." - Jonathan Haidt[15]

1. Price Is Not a Measure of Value

"In spite of numberless efforts, the theory of value was and is one of the darkest, most confused and controversial parts of our science." - Eugen von Böhm-Bawerk[16]

The Diamond-Water Paradox – Value in Use and Value in Trade

Capitalism is often criticized for its narrow focus on monetary value. However, the *market price* of a good, service, or activity is actually not a measure of its *value*. Someone might insist that sex is the more valuable the more it is paid for, but at least the author of this book would have to disagree.

Already Adam Smith pointed out how, confusingly, the word "value" is used in two very different meanings:

> "The word value, it is to be observed, has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be called 'value in use'; the other, 'value in exchange.' The things which have the greatest value in use have frequently little or no value in exchange; on the contrary, those which have the greatest value in exchange have frequently little or no value in use." (1776 Smith, Book 1, Chapter 4)

A famous example of this *paradox of value* is the *diamond-water paradox:* Diamonds have very little practical utility to most people, but yet their market value is often much higher than that of water, a vital resource with many uses. When something is abundantly available with low production costs, its market value remains low, regardless of how useful and vital it would be.

However, if the production costs of fresh water were to rise or if access to it were restricted in some other way, the market price of fresh water could rise to whatever people can afford to pay for it.

The illusion of rationality

In most economic theories, *value* is completely subjective. *Valuation* is always something done by an individual.

Some simplistic models, in e.g. neoclassical economics, assume that people have, in their heads, a predetermined *utility* – i.e., quantifiable use value – for different goods and services.

The (in)famous *Homo economicus* model of human behavior essentially says that people try to maximize the total utility they receive or experience. However, this model has been shown to be far from reality. No one actually puts everything on such a single axis. People might play many different "games" in their lives. Often they don't even *want to* make comparisons between these different kinds of value. An example of this is *mental accounting*: only certain types of expenses are directly compared to each other.[17]

Actually, human behavior is mostly quite irrational. We are merely masters at *justifying* our decisions in retrospect by *rationalizing* them – finding rational reasons and arguments for them.[18] Some researchers suggest the main function of reasoning is argumentative. We often only properly engage in the rational justification process when we need to explain ourselves to others or convince them of something.[19]

Modern economics observes value in terms of *revealed preference*.[20] Essentially, **value is just a representation of people's choices.** Valuing bundle A more than bundle B means that a person would *choose* bundle A over bundle B.

Mutually beneficial activities need less compensation

Of course, possessing goods with a high market price (i.e., *value in exchange*) gives one high *purchasing power* over other things. It gives power over other people, the use of their labor. And this of course grants a lot of positive freedom, i.e., opportunities.

However, purchasing power over goods and services produced by others is not the only thing that matters in life. As the MasterCard commercials wisely remind us, many of the things people consider most valuable are *priceless*, meaning that they cannot be purchased

This explains the example mentioned in the beginning: The most valuable sex is often the kind that is valuable *to both parties* in itself so that neither party needs to compensate the other with an additional payment of something else.

Another example of a very valuable "service" with no (or a negative) market price is parenting. The fact that people are willing to raise their own and even others' children without getting paid for it does not make parenting worthless! Many people are even willing to *pay* to adopt children.

Also e.g. amateur music or theatre productions are examples of activities that have value for both the producers and consumers of the show. Hence, the monetary compensation for these remains low. The ticket prices do not measure the full real value of the activity to those involved.

Supply and demand – the market forces

In a free market, the prices of goods, services, and work are determined by *supply* and *demand*. These are also called *the market forces*.

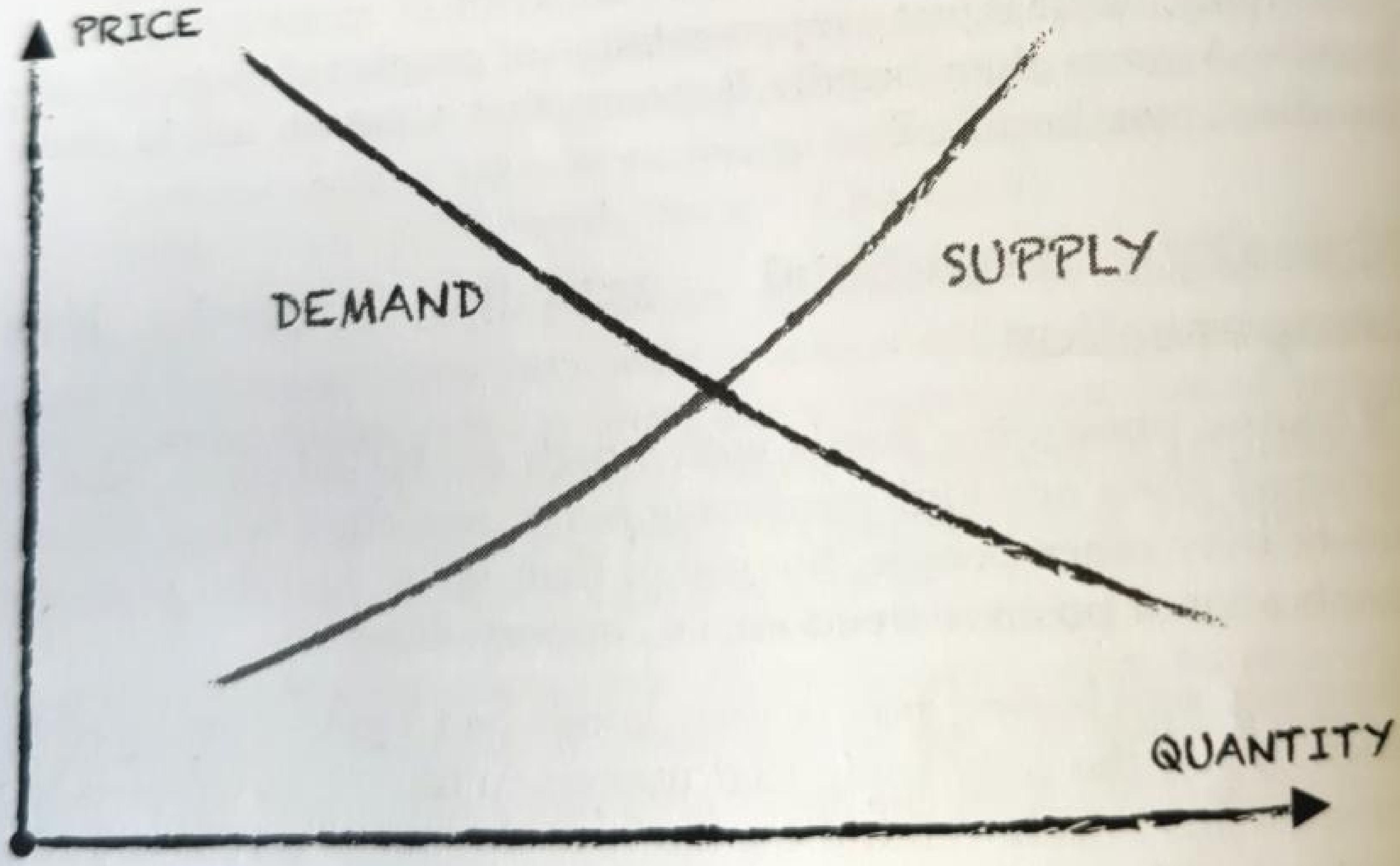

Image 1: An example of supply and demand curves.

Supply is formed by the quantities of the good in question that people are willing to provide at different prices. Demand, similarly, is composed of the demanded quantities of the good at different prices. People can't sell if no one buys and can't buy if no one sells. Hence, markets often tend towards a price at which *supplied and demanded amounts* are in balance.

For something to have a high market price, it needs to both:

1. be highly valued by someone with purchasing power (high demand) and
2. have significant costs of production – or its availability needs to be limited by something else (low supply). (See paradoxes 10, 11, and 12)

The idea that the market price would reflect the absolute value of a thing is close akin to the Marxist version of the *labor theory of value,* which says that the value of goods and services is solely determined by the labor "socially necessary" for producing it.[21] These are kinds of *cost-based valuation.*

There is a lot of variance between different goods and situations in how sensitive the demanded and supplied quantities are to changes in price. The *price elasticity* of demand refers to how much the demanded amount changes per unit of price change.[22] When the demanded amount does not change with price, demand is *price-inelastic.* Land – i.e., location – is an example of a resource with *price-inelastic supply.* (See paradox 12) When more can always be supplied with the same price and hence the price remains the same regardless of the demanded amount, supply is *infinitely price-elastic.*

Price elasticities of both supply and demand vary a lot depending on the time scale in question. The supply of many products can be infinitely price elastic in the long-term, but very inelastic if demand rises significantly within a week, as it takes time to install new production capacity.

Food and energy are examples of goods where both supply and demand are often quite price-*inelastic* in the *short term.* This is why unexpected shortages (due to e.g. a bad harvest, in the case of food commodities, or an unusually cold winter, in the case of energy) or unexpectedly high production easily cause large swings in their market prices.

Wages are not a measure of the value of work

Wages are the market prices of labor, and similarly, the wage paid for a kind of work does not represent its absolute value in any way. The political left often tends to confuse "human *equality*" with *income equality*.

If a person chooses to only supply kinds of work that are already in abundant supply, he will likely end up with a low income. But calling this "inequality" is hardly descriptive. Instead, a person in a developing country with no access to higher paying labor markets due to immigration restrictions and nonexistent educational opportunities can rightfully consider his situation to be unequal compared to mine.

Neither do income differences between different industries or professions have anything to do with differences in "productivity", as will be explained under paradox 3.

We could say that the function of prices in a market economy is to bring supplied and demanded quantities into balance. The function of paying people for something is to encourage people to do or make more of it. If the supplied amount of a kind of effort is sufficient without compensation, there is no need to pay for it.

If, for example, we had a sufficient number of people willing and able to do heart surgeries with good quality and sufficient responsibility for free, there would be no need to pay heart surgeons anything. The market price of heart surgery would be limited to the tools and facilities needed. This, of course would not make heart surgery work *worthless*. The surgeries would still remain just as valuable to those receiving them - even if they cost less.

So, if the dream of present-day techno-utopian communists (e.g. the Zeitgeist Movement) of a world without trade and money would be feasible, it could emergently appear within a market economy. You would just need to encourage people to do more things for each other with lower and lower compensation.

One way to move *towards* this kind of a trade-free utopia would be letting companies come up with ways of making productive activity so enjoyable that people want to do it for free. An example of this is the way TripAdvisor created a platform that made it rewarding for people to provide vacation venue reviews and hints to others for free. This allows far more versatile reviews and more information in general compared to the old Lonely Planet business model where the evaluations are done by professional reviewers.

GDP is a problematic measure in many ways

The Gross Domestic Product (GDP) is the sum of the market value of all the goods and services produced within a nation's borders and sold to someone.[23] No doubt, some economists do seem to take the GDP as an absolute measure of the value produced in an economy, despite the fact that such measures omit a lot of cooperation that has not been paid for with the dominant currency, such as household work, parenting, and volunteer projects.

Moreover, it is important to remember that also the costs caused by all kinds of catastrophes and accidents - including natural disasters, wars, epidemics, crime, and fires - show up as a rise in GDP. GDP essentially measures the *costs* of traded goods and services.

However, GDP is an imperfect measure of this traded value as well. Qualitative improvements are hard to measure accurately. This applies predominantly to services. Especially when new, relatively cheaper services replace existing ones, this might look like economic activity is diminishing, when it would be more descriptive to consider it improved labor productivity (see paradox 2) and falling nominal prices (i.e., deflation, see paradox 8). This is one explaining factor for the *productivity paradox* in information technology (IT): the observation that the adoption of IT does not seem to raise productivity significantly in terms of traditional measures.[24]

Take for example the case of Google Translate replacing manual translation services. A single translation costs next to nothing, but the difference in quality can't be directly compared to a manual translation. Is this a productivity improvement in translation services and a growth in the quantity of translations? Or is the traditional translation industry waning and being replaced by a new industry?

Even if such services clearly represent an improvement in productivity and our living standards, it might not be visible in traditional GDP and productivity measures which might consider the new industry to be a "low value" or "low productivity industry" due to its lower prices.

We'll go deeper into the problematic nature of this whole concept of *productivity* under paradox 3.

> **"Where your talents and the needs of the world cross lies your calling." - Aristotle**

2. Sharing Grows the Pie

"We owe it to the division of labour that we produce more than we consume. Liberated thus from the compulsion of immediate needs, we can devote time, provisions and work to the perfection and multiplication of our means of production."
- Silvio Gesell, The Natural Economic Order[25]

Trade is not a zero-sum game

Firstly, I have to say that I highly dislike this "sharing/growing the pie" metaphor. Actually, I had to add in the "pie" word just so that I could explain why I hate it.

The Pie is a rhetoric device that allows confusingly bundling together quite a few different pies. People often use the word without specifying whether they are talking about the gross domestic product (GDP, i.e., total income), total wealth (i.e., the net market value of assets), the overall government budget, or transfer payments. The sizes of these pies are affected by quite different things. (See e.g. paradoxes 10 and 14)

In the case of this chapter's title, by "the pie" I mean total income. Or actually, total income plus leisure. But by "sharing" I don't mean forceful redistribution of that income. I mean trade and the spreading of ideas.

What I mean is that by

- specializing and cooperating,
- sharing or trading our produce, as well as
- sharing ideas to develop them further,

we can all get more with less. We can produce more and better products and services with less effort and other resources.

As explained in the previous chapter, value is subjective. However, usually we need or appreciate every additional unit of a kind of good less than the previous one. This *diminishing marginal utility*[26] is in itself enough to make sharing value-creating. If I have two scoops of ice cream and give the other one to you, you might appreciate that first scoop more than I would appreciate a second one. (Of course, comparing utility between people is practically impossible, but we might both feel we have gained if I gave you one of my two cookies in exchange for one of your two scoops of ice cream.)

We need not even go here into the additional value of sharing that can be derived through empathy or the joy of giving and contributing, feeling useful.[27] So, unlike the old joke would have us believe, there *is* a difference in cutting a pizza into eight slices instead of six – especially, if you are not eating the pizza alone.

Cooperation increases productivity

Additionally, there are often large *economies of scale*[28] in production: Unit costs fall when things are produced in larger quantities. Fixed overhead costs as well as the development costs of the products and production process are shared among a larger quantity of produced units.

Moreover, when combining our versatile skills we can produce complex products that none of us could have produced alone. As Leonard Read pointed out in his famous story "I, Pencil", it would be an almost impossible task for a single human being to develop all the skills required for the production of a simple pencil.[29] We wouldn't have gotten far without cooperation.

This rise in *productivity* (see paradox 3) as a result of the *division of labor*, i.e., specialization and cooperation, was the central story also in Adam Smith's main work *An Inquiry into the Nature and Causes of the Wealth of Nations*.[30] And this story was far from over in 1776.

In sharing and combining ideas, proximity matters

In addition to the sharing of products through trade, another crucial kind of sharing is the sharing of *ideas*: our ability to develop technologies, to teach their use to others, and to document them for future generations.

Urbanization has played a central role in this development. Bringing larger numbers of people close together allows:

- bigger benefits of scale,
- whole new industries providing new types of services that

would not be profitable (i.e., worth operating) in a smaller market, and

- higher rates of "idea collisions" to create better ones and allow new initiatives.

The proximity of people matters. Hence, *location* matters – and it matters more and more the more efficient we become at using other resources. Many economic theories omit the special nature of location and how the fact that people can currently *own* location without a notable cost is very problematic. (See paradoxes 10, 11, and 12)

In terms of total real income – the goods and services produced and people's purchasing power over them – the *zero-sum heuristic* is a dangerous fallacy. Cooperation and competition[31] as well as sharing and trade can make every one better off by improving productivity and facilitating the production of new things.

"[E]ach of us, as individuals, is limited, like a neuron. Neurons are not very smart on their own. They do one thing and they do it well." ... "So we need each other to think – we need each other to challenge our reasoning." – Jonathan Haidt[32]

3. Increased Productivity in an Industry Can Lower Wages and Revenues

> **"The product of labour, the yield of labour and the proceeds [of] labour are not immediately comparable. There is no common measure for these quantities. The conversion of one into the other is not done by measuring but by contract, by a bargain.**
>
> **It is impossible to say whether the proceeds of labour of in[dividual] workers do or do not correspond to the whole proceeds of their labour.**
>
> **The whole proceeds of labour can only be understood to the common or collective proceeds of labour." – Silvio Gesell, The Natural Economic Order[33]**

Increasing productivity means 'destroying work'

Productivity is another easily confusing word. Labor productivity essentially means *how little labor is needed* to produce something. "Increasing labor productivity" usually means reducing the amount of work needed to produce something. It can also mean increasing the quality of the output, but measuring this kind of qualitative productivity growth is often problematic, as mentioned under paradox 1.

The political right often likes to hide or downplay this fact that increasing productivity is essentially "destroying work" (and jobs, as long as a human is the unit of labor – see paradox 14) by saying that productivity growth is "producing more with the same amount of work". But that is mathematically the exact same thing. Though productivity growth *allows* producing more, it does not guarantee that more *will be produced*.

An increase in labor productivity means that we can get more (output) with less (work). Now, whether we choose (A) more products and services or (B) less work and more free time should be a matter of everyone's personal preference. (See paradox 14) Increased productivity does not mean "more jobs". Quite the contrary. Work is not a resource the economy should aim to "produce". It is a *cost* that an efficiency-oriented economy usually aims to minimize.

Under our current mercantilist foreign trade politics and the euro removing elastic currency exchange rates, increasing productivity is one way to increase price competitiveness, which can attract more production to the country. (See paradoxes 16 and 17) This is usually the logic behind arguments for "creating jobs" by increasing productivity.

Sometimes an increase in use efficiency of *a specific* resource can even increase its total use, as will be explained under paradox 4. However, that usually doesn't apply to a single kind of skill, and its applicability to labor in general is also questionable.

Tracing causal productivity is near impossible

Another source of confusion is that the word "productivity" implicitly includes the idea of *causality*.

Producing a good or service is essentially causing it to come to existence or to occur. Often many different activities or parts of a service are all equally *necessary* to produce a useful product at all. It is hence impossible to distinguish between the "productivities" of these different types of labor. Rare cases where the productivity of a single input can be determined in this causal sense include an outside consultant without whom the production could have occurred.

For similar reasons, the "productivity of capital" is actually not a very sensible economic concept. Unlike the Chicago school of neoclassical economics likes to think,[34] one cannot distinguish what part of productivity growth is "caused" by capital and what part is "caused" by labor. (See paradox 5)

So, unlike the political right likes to claim, income differences between industries or between professions within industries have nothing to do with differing productivities or growth rates in productivity. Actually, you cannot even compare labor productivity between two activities directly unless their direct outputs are *commensurable*, i.e., measurable in the same units.[35]

Wages also rise in industries with no productivity growth

In most cases, market prices in major currencies are the only common units for comparison. As explained under paradox 1, in a market economy, prices are determined by supply and demand. This also applies to wages, the prices of different kinds of labor.

Productivity growth would only determine income differences if the relative prices of end products somehow magically remained fixed. In reality, supply and demand tend to balance the income distribution between all professions. This also grants real income gains to people working in industries with hardly any productivity growth, such as hairdressers, doctors, and professional live-performing string quartets.

This tendency of overall productivity growth to raise the relative costs of labor-intensive services is also known as *Baumol's cost disease.*[36] It imposes challenges on covering the costs of the public sector, especially in countries with publicly subsidized education and healthcare, as these industries are very labor-intensive.

If income differences between sectors would really be determined by different rates of productivity growth, people making computers would currently earn millions of dollars per hour. The quality (as measured by e.g. computing capacity) has grown exponentially, as described by *Moore's law,*[37] and simultaneously labor productivity in the production of microchips has grown manyfold. But instead of this leading to astronomical wages for people making computers, the result has been better and cheaper computers for everyone. The increase in productivity has raised the real income (that is, purchasing power) of almost everyone in the global economy.

So, even if the potential total real income in the economy is increased by overall increases in productivity, (see paradox 2) productivity growth does not determine the revenues of specific industries or wages in those industries. In a fair market economy, income distribution would be determined by supply and demand: people's preferences between different kinds of work and the need for those kinds of work.

Cartelized producers have an incentive to hamper progress

Actually, a higher than average productivity growth in an industry is more likely to *lower wages* in that industry. This is especially likely to occur if both the demand for the end products and the supply of the types of labor specially needed by the industry in question are very price-inelastic. (See paradox 1)

Computers have some price elasticity of demand: As they get cheaper, electronic devices find new users and microprocessors are applied to new purposes. But let's consider another industry that has been the subject of a massive structural change: agriculture. No matter how cheap food gets, people won't eat much more of it (though they might start eating more expensive types of food). The price-elasticity of demand of basic staple foods is very low.[38]

Hence, an increase in productivity mostly results in less labor needed in farming. The increase in food consumption is largely determined by population growth, which is very low in developed economies. If farmers are uneager or unable to re-educate themselves for other types of work, the resulting competition between farmers is likely to push down their wages and profits even further.

Collectively, an industry or a professional group usually does not benefit from increases in productivity, even though such increases benefit the whole economy. This is one reason why private monopolies, cartelization, and collective bargaining power can be so damaging: Cartels and monopolies have an incentive to hinder progress in order to maintain the producers' power in the economy. An infamous example of this were the Luddites, early 19th century textile artisan activists who protested against the adoption of power looms and even sabotaged them.[39] Even today, workers and trade unions are seen opposing the adoption of new, automated or otherwise more efficient equipment for fear of losing their jobs. (For why "job security" is not sustainable economic security, see paradox 15.)

Under fair competition, though, every individual agent has an incentive to increase her own productivity, as such improvements give her at least a temporary edge and higher margins before they are eaten away by competition and transferred into lower prices. (See paradox 13)

4. An Increase in the Use Efficiency of a Resource Can Increase Its Consumption

"It is wholly a confusion of ideas to suppose that the economical use of fuel is equivalent to a diminished consumption. The very contrary is the truth." - William Stanley Jevons[40]

Needing less can make people use more

We often think that if we want less of something to be consumed, we should increase its use efficiency. However, the outcome can sometimes be the opposite: Increasing the use efficiency of a product might increase its overall use!

This phenomenon is called the *Jevons paradox* after William Stanley Jevons, who observed it in the case of coal in 1865.[41] The effect can be a mild *rebound effect* or stronger *backfire effect*.[42]

The logic behind this effect is that the increased use efficiency makes the technologies employing the resource cheaper to use, and this falling price increases the demanded amount for products produced with that technology. For this to occur, demand has to be highly price elastic in the long term.

A lot of this price elasticity of demand comes from *substitution effects*:[43] When coal became more efficient to use, coal power started replacing other sources of energy. Of course, the development of coal-powered technologies also allowed the emergence of completely new industries, and the rising labor productivity raised people's real incomes, facilitating higher total consumption and production.

> "Nor will the economical use of coal reduce its consumption. On the contrary, economy renders the employment of coal more profitable, and thus the present demand for coal is increased, and the advantage is more strongly thrown upon the side of those who will in the future have the cheapest supplies."[44]

In mature industries, there is often a smaller rebound effect, as the technology has already replaced alternatives in a large number of potential uses.

Reducing total use likely requires raising costs

So far, the Jevons paradox has applied to overall energy use pretty well. Even if energy efficiency has improved significantly in many applications, the overall consumption of energy has kept on growing. Although the *short-term* price elasticity of demand in energy might be low, especially downwards,[45] people are quite good at finding new uses for it in the longer run.[46] Energy consumption tends to grow with general economic growth, so it is hard to know what the exact causal relation is between overall energy efficiency and total energy use.

An important implication of the Jevons paradox is that if we want to reduce the use of e.g. fossil fuels, merely increasing energy use efficiency is unlikely to lead to the desired outcome. An effective solution likely requires *raising the costs* of using fossil fuels.[47] This can easily be done with direct carbon taxes.

An *externality effect* is an effect on parties that are not involved in making the decisions. There are positive externalities, benefits to outsiders, as well as negative externalities, which are also called *externality costs.*

Along with the existence of natural monopoly industries and resources, (see paradox 10) negative environmental externalities (e.g. pollution) are the most important market imperfections in an anarcho-capitalist vision of a completely "free market" allowing the private ownership of everything and lacking all state intervention.

The costs of externalities involved in production can be embedded into the prices of end products by imposing *a Pigovian tax,* a.k.a. a *harms tax,* on the negative externality (named after French economist Arthur Pigou). Such a tax makes agents pay for the costs they impose on others and hence discourages such activities.

A *carbon tax* is a kind of Pigovian tax on the likely adverse climate change, which research suggests the continuing use of fossil fuels is likely to cause.

Optimally, the size of the harms tax should be equal to the externality cost imposed. However, even inaccurate Pigovian taxation shifts the incentives of agents in a more efficient direction. As the possible impacts of an unpredictable climate change are massive and some even priceless (e.g., the loss of irreplaceable biodiversity and habitats), and as we will have to get rid of the use of fossil fuels at some point in any case, it can be argued that the right price for carbon emissions would be close to infinite. In practice this means a total ban on the use of fossil fuels in energy production.

An addict takes all he can get

The most fair and efficient way to get rid of the use of fossil fuels is to impose credibly and predictably rising carbon taxes on their use, and promising to ban their use in energy production eventually completely. This would stimulate private sector investments in alternative energy forms, while it could almost immediately halt investments in accessing new fossil fuel reserves.[48] Thus, such a scheme would allow a relatively fast energy paradigm shift, while minimizing political risks and unjust write-offs for investors with positions in the fossil fuel industry.[49]

The main obstacle to imposing such Pigovian taxes is the *growth dependence* of our current market economies. This forces governments to prioritize keeping energy cheap as well as creating jobs and preserving existing ones in fossil fuels and related industries. (See paradox 14)

Will increased productivity always stimulate more work to do?

It is a big question how well the Jevons paradox applies to labor in general. Many economists like to assume that "people's needs are endless" and that increased labor productivity will always be offset by people consuming more goods and services, keeping most of the working-age population full-time employed.

Surely, most people will always want "more". But the preference between *more goods and services* and *more free time* should be a matter of individual preference. And, by the way, a shorter workweek is not the only way to do less paid work during one's lifetime. (See paradox 14)

"If we lavishly and boldly push forward in the creation and distribution of our riches, it is hard to over-estimate the pitch of beneficial influence to which we may attain in the present. But the maintenance of such a position is physically impossible. We have to make the momentous choice between brief greatness and longer continued mediocrity." – William Stanley Jevons[50]

5. Investments Can Be 'Profitable' at a Loss

"Time preference may not always be a preference for present over future goods; it may, under certain conditions, be the opposite. Impatience may be and sometimes is negative!" – Irving Fisher[51]

Labor is not the only cost

In chapter 1, we introduced the idea of subjective value: It's up to each and every one of us how highly we value different goods or services in relation to each other. This also applies to negative value, i.e., costs: It's up to you how much you hate your work.

In Karl Marx 's opinion, costs determine the value of things. This combined with the idea that labor is the only cost gave him his theory of value, which is a kind of *labor theory of value*: The value of a good is the amount of work "socially necessary" for producing it.[52] This theory is essentially a form of *cost-based valuation*.

But is labor – spent time or effort on something – the only kind of human cost necessary for the production of goods and services? No.

This is what brings us to the concept of *capital*.

Or, rather, the *concepts* of capital. The accounting and finance concept of "capital" differs quite a lot from the economics concept of "capital", as we'll soon understand. And what Marx meant by "capital" is yet another thing. When we unravel these meanings, we see that "capital" has very real relevance even in the absence of a market economy – even for Robinson alone on an island without any possible trade partners, and also for you in your personal life choices.

Let's start with a simple everyday situation. You are considering whether to acquire a dishwashing machine. What factors would you take into account? A consideration based purely on the labor theory of value would make an estimate of (1) the amount of work that is needed to produce or purchase the machine and (2) the amount of dishwashing work that the machine saves you. If, for simplicity's sake, we assume that you have equal hatred towards (i) washing dishes, (ii) filling and emptying the machine, and (iii) whatever work you need to do to build or earn the machine, you would simply subtract the cost of making the machine from the saved dishwashing hours (i – ii – iii) and see whether the investment pays itself back or not.

However, there are two other factors we need to consider: *risks* and *time preference.*

Risk: quantifiable uncertainty

We face many decisions in life in which we cannot know the exact outcome beforehand. "Risk" often refers to situations where the exact outcome is unknown, but we know the *probabilities* of different outcomes, distinguished from *Knightian uncertainty*, which cannot be quantified.[53]

In the dishwasher case, you might not know in advance exactly how much labor the machine will save you. Additionally, in the case that you have to build the machine yourself or you get no warranty from the producer, you might not get a functioning machine for your efforts after all.

These risks of course lower the *expected value* of the investment: the average of possible outcomes weighted by their probabilities. However, most people would also prefer a certain result to a risky one with the same expected value. For risky investments, they often demand a *bigger* expected return. Reasons for this include an inherent preference for predictability, which makes planning easier, as well as the diminishing marginal utility of income: A loss of a certain size often does more harm to one's opportunities than a gain of the same magnitude increases them. (See paradox 2)

Time preference – to wait or not to wait?

Time preference refers to overall patience or impatience. Goods and services or purchasing power over them in the future might not be worth to you as much as the same services would be worth to you right now. Also, labor you have to do now might not weigh as much in your decisions as labor you need to do later.

Of course, your preferred time of buying things and working varies by type of product and type of work. Time preference essentially means how willing people are to save their income for the future. And similarly as people's demand curves for individual products are *functions* of the quantities that people are willing to purchase at different prices, (see paradox 1) time preference is not a scalar number, but a function of the amounts that people are willing to save at different returns they might get for that saving and willing to go into debt for different costs of being in debt. (I avoid the word "borrow" for a reason, as will be explained under paradoxes 6 and 7.)

For example, you might be a student with currently very low income, and you might value every cent you get to spend now very highly versus any benefits you might get in the future. Even if you calculated that the dishwasher investment would pay itself back, you might not consider it worth having to forgo you current spending to save up for it.

This extra return you require for you investment – due the risks and having to wait for the benefits – is your *cost of capital* (to be more precise, your *cost of equity* in the case of saving, as will be explained).

Getting a dishwashing machine is not a very risky investment when equipment suppliers grant five-year warranties. Even the demand for dishwashing in your household is quite predictable. But as another example, getting an education is also a kind of *real investment* for the individual: work done and costs incurred in advance to allow a higher income in the future.

In today's labor markets, education is a very risky investment: After years invested in studying and university fees, you might still not find work with the help of your new degree or skills. In deciding whether completing a degree is worth it or not, you also have to take this risk into account. (Of course, a higher income is not the only benefit one gets from an education or degree. For many people, getting a degree is more about the prestige or getting to do a specific kind of work that they expect to enjoy more than the kinds of work they could've done otherwise.)

This perceived risk in an investment adds further to your cost of capital. The additional profit requirement the risk makes you impose on such an investment is called a *risk premium*.

The different meanings of 'capital'

At this point we need to distinguish between the economics and the finance/accounting definitions of "capital". In economics, "capital" refers to the productivity-increasing physical assets themselves, such as machines and buildings. (This is what Marxists call *the means of production*.) Economic theories vary in how much they take into account immaterial capital, such as product designs and processes or skills and contacts, a.k.a. *human capital*.

In finance and accounting, "capital" is the

1. *ownership* of such assets or rights to their expected income streams,
2. the funds invested in acquiring such assets, or
3. funds (credit) available for potential investment.[54]

When we talk about the *capital structure* of a company, we are not talking about its factories and machines but about how the risks of the business and investments are allocated between the company's creditors and shareholders. (See Image 13 under paradox 19)

The *cost of capital* is a finance term and refers to the annual profit requirement for the investment. However, it is still a "Crusoe-relevant term", in that it is meaningful even in a one-person economy with no trade or market mechanisms. Some classical and Austrian economists used the term *interest* to refer to such a profit requirement[55] (a different meaning to the everyday meaning of "interest" as *the cost of credit*, see paradox 7). On the other hand, when economists talk about the "price of capital"[56] they might mean the production cost or market value of the assets in question.

Moreover, financial capital can also be used to acquire *assets*[57] that are not considered "capital" in the economics sense but that grant the holder future benefits but do not increase overall productive capacity. One example is *credit*, which is essentially someone else's promise to deliver you goods and services. Credit is not a *real asset*, as any credit is someone else's debt, i.e., liability (kind of a "negative asset"). Money – the form in which most financial capital is invested – is also a kind of credit. Its value is in the purchasing power it grants the holder, as will be explained under paradox 6.

As another example, *privileges* are assets that grant their holder a benefit, but do not increase overall productivity. Patents and taxi medallions are examples of privileges that can be sold. More on the special nature of privileges and natural resources under paradox 10. Whether we want to consider privileges "real assets" is a matter of definition.

Image 2 presents different kinds of assets than can grant their holder benefits in the future. Classical economics and Georgist political economy often consider only producible production and consumption goods "capital", and refer to non-producible natural resources as "land".

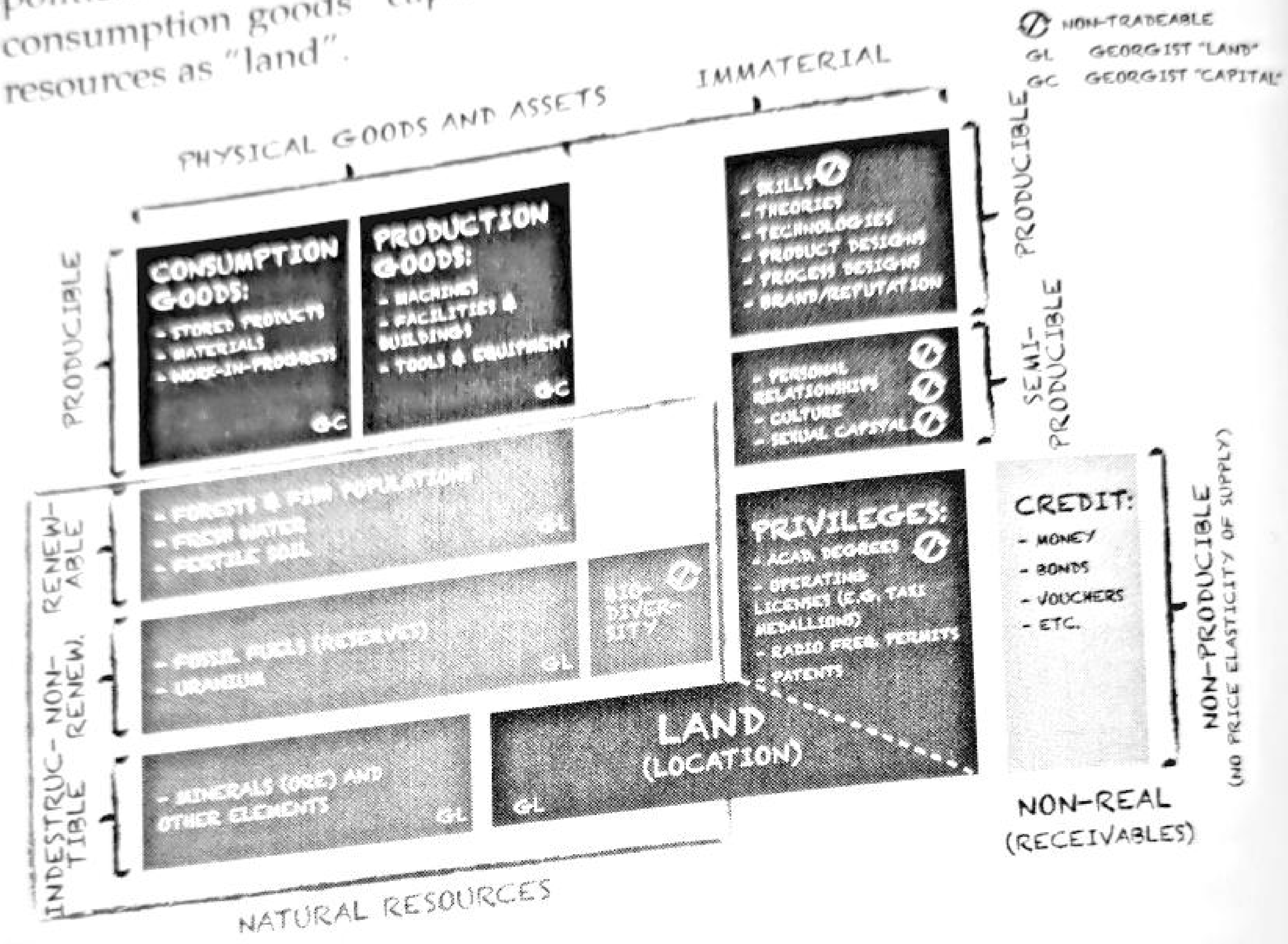
⊘ NON-TRADEABLE
GL GEORGIST "LAND"
GC GEORGIST "CAPITAL"
PHYSICAL GOODS AND ASSETS
IMMATERIAL
PRODUCIBLE
CONSUMPTION GOODS:
- STORED PRODUCTS
- MATERIALS
- WORK-IN-PROGRESS
GC
PRODUCTION GOODS:
- MACHINES
- FACILITIES & BUILDINGS
- TOOLS & EQUIPMENT
GC
- SKILLS ⊘
- THEORIES
- TECHNOLOGIES
- PRODUCT DESIGNS
- PROCESS DESIGNS
- BRAND/REPUTATION
PRODUCIBLE
- PERSONAL RELATIONSHIPS ⊘
- CULTURE ⊘
- SEXUAL CAPITAL ⊘
SEMI-PRODUCIBLE
RENEW-ABLE
- FORESTS & FISH POPULATIONS
- FRESH WATER
- FERTILE SOIL
GL
NON-RENEW.
- FOSSIL FUELS (RESERVES)
- URANIUM
GL
BIO-DIVER-SITY ⊘
PRIVILEGES: ⊘
- ACAD. DEGREES
- OPERATING LICENSES (E.G. TAXI MEDALLIONS)
- RADIO FREQ. PERMITS
- PATENTS
CREDIT:
- MONEY
- BONDS
- VOUCHERS
- ETC.
NON-PRODUCIBLE
(NO PRICE ELASTICITY OF SUPPLY)
INDESTRUC-TIBLE
- MINERALS (ORE) AND OTHER ELEMENTS
GL
LAND (LOCATION)
GL
NON-REAL (RECEIVABLES)
NATURAL RESOURCES

Image 2: Types of valuable assets.

People are not always chronically impatient

Time preference can also be *negative*. This should be fairly obvious, but somehow it seems to be an impossible idea for many economists and policy commentators. Even Irving Fisher noted this possibility in his 1930 *Theory of Interest*.[58] In today's world, this can be argued to be more the norm than a mere possibility.

If you are a person with a strong "first work then play" mentality who desperately wants to get chores out of the way now, you might be willing to "save" even at a real loss. In other words, you might be willing to work ten extra hours this year in order to avoid nine hours of similar work next year.

Often an even more important driver for such a preference for earning now is economic insecurity. If people's incomes in the future are very uncertain, this often makes people willing to save for that uncertain future.[59] If the uncertainty is significant, this desire to save might not even be quenched by a notable loss on the savings. (See paradox 8)

For example many Austrian economists like to justify the high returns on capital with the assumption that time preference is always "positive", meaning that people are chronically impatient creatures who would never save for the future unless they were rewarded for doing so.[60] This assumption can be proven false pretty simply.[61]

For the past six years, the real interest rate on deposits in the U.S. and the eurozone has mostly been negative: Taking the expected rise in the overall price level (i.e., inflation) into account, savings held on a bank account could be expected to buy you *less* overall next year than this year. Some people have even had mortgages on negative real rates. This did not prevent people from wanting to save money or from paying off their mortgages.

Risk premiums are also negative in some cases. The whole gambling industry is based on the fact that people sometimes *value risks*. Risks involve a negative cost. People playing slots or roulette in a casino or betting on soccer matches are ready to accept a negative *expected value* for their "investment" just to experience the thrill of the *chance* of winning big.

In a world with money, the interest rate determines investors' costs of capital

In the earlier dishwasher examples, we assumed a barter economy with no money or credit. The decision situations change quite a lot if we have a monetary system, which allows people

- to put off their consumption into the future also by saving their purchasing power as credit on others, and
- to acquire things earlier by taking on debt.

When savings get a positive return (a positive real interest rate), the very patient person (with a "negative" time preference) would not buy the dishwashing machine that didn't pay itself back. It would be a better return on his savings to save up money and pay someone else to wash his dishes in the future.

On the other hand, if the poor student was able to get cheap credit and trusted her chances of earning an income in the future, she would make the labor-saving dishwasher investment on credit, without needing to forgo current consumption. In this case, the cost of capital is the *cost of credit*, i.e., the real interest rate she would have to pay on the debt.

This is a crucial point to understand: The costs of capital are the profits that investors need an investment to make in order for it to be worth making. And in the real world with a monetary system, the costs of capital strongly depend on real interest rates!

The *cost of credit finance* is the interest rate on that credit. The *cost of equity* – i.e., of your own savings or of shareholder investments in the case of a company – depends on the returns that the investor could get for other investments she could make with her savings. As N. Gregory Mankiw's second "principle of economics" says: "The cost of something is what you give up to get it."[62] This also applies to financial capital: The investor gives up the opportunity to invest her savings in something else or to keep the savings in another form.

When there is the risk-free alternative of keeping your savings as government-guaranteed bank deposits, all other investment options are compared to the real return that these deposits are expected to yield. Investors require the deposit interest rate *plus* the *risk premium* they attribute to that specific investment.

In an economy with money, an individual investor's time preference no longer makes a difference in individual investment decisions – it only matters for how much one decides to save. The risk-free interest rate is essentially the "price of time" for the whole market.

It is hence fair to say that the interest rate determines the overall "wage level of capital". (And no, interest is *not* "rent for borrowed money", as will be explained under paradox 7.) Under efficient competition and in the absence of private, costless ownership of monopoly resources, the interest rate would essentially determine the share of national income going to owners of capital assets (from here on, "the income share of capital"). (See paradoxes 10 and 18)

The lower bound on real interest rates – a minimum wage for capital

Most importantly, if many people's overall time preference is negative and the risk-free real interest rate can fall negative, also real investments can be *"profitable" without making a (real) profit!*

"Profitability", in some dictionaries, might be defined simply as "the state or condition of yielding a financial profit or gain"[63] or "making money",[64] which would make the previous suggestion logically impossible. However, when we discuss profitability in finance, we are essentially concerned about whether an investment is *worth making* or not, i.e., whether it yields an *advantageous* result.[65] Expecting to get out more than you put in in real terms is not sufficient to ensure that.

And an investment is worth making when its *net present value* is positive: when its cash flows *discounted* with the proper capital costs add up to more than zero.[66] [67]

Unlike Marxists (and also many of the strongest advocates of capitalism) like to insist, there is no natural law that would require wealth to always earn more and more wealth in a market economy - or demand that "money can [always] beget money", as Benjamin Franklin put it.[68]

Theoretically, the income share of capital could even fall negative! In Marxist terms: the owners of "the means of production" might even have to pay for their right to own them. And they would be willing to do so if owning such capital assets would be the best available way to postpone one's purchasing power into the future - i.e., to save.

In a fair market economy, also the interest rate and the returns on capital should depend on supply and demand: The interest rate should keep people's desires to save balanced with profitable real investment opportunities. In a closed economy, this is mathematically identical to keeping the overall supply and demand for labor balanced, as we'll see under paradox 6.

However, in our current economic system, this does not happen, as real interest rates cannot fall to the balance level, a.k.a. to the "natural rate of interest".[69] (See paradox 7) If nominal interest rates (the rates actually paid on your deposits) fell significantly negative, people would hoard physical cash, which always yields 0 % nominal interest. The real interest rate - how much the purchasing power of your savings change - is also affected by expected inflation, the rise in the overall price level.[70] (See paradox 8) Hence, the target inflation of the central bank sets the lower bound on real interest rates. With the 2 % inflation targets of Western banks, real interest rates cannot fall much below -2%.

This lower bound on real interest rates is essentially *as if capital had a minimum wage*. No matter how much people's desires to save increase, this "higher supply of capital" cannot lower the profits required for investments and hence the returns on capital if real interest rates cannot fall further.[71]

The most effective ways of lowering the returns on capital will be assessed under paradox 18.

To sum it up: The *real costs of capital* are people's averseness to risk and their impatience to rest and enjoy themselves. If people tolerate risks well and prefer to "first work, then play", ownership does not have a cost. There might be so much *demand for ownership* that people should have to pay for their right to get to own things. And the global economy is almost in that situation right now.

> **"If employers of labour were offered money-capital at half the present rate of interest, the yield of every other class of capital would soon also fall to half." - Silvio Gesell, The Natural Economic Order[72]**

6. Excessive Saving Can Make Us Poorer

"New capital-investment can only take place in excess of current capital-disinvestment if future expenditure on consumption is expected to increase. Each time we secure to-day's equilibrium by increased investment we are aggravating the difficulty of securing equilibrium tomorrow. A diminished propensity to consume today can only be accommodated to the public advantage if an increased propensity to consume is expected to exist some day." – John Maynard Keynes[73]

The Schiff Fish tale

Many of us have a mental image of money as stored up work, and like to think that wealth grows as the accumulation of more money.

One of the clearest presentations of this mental image is in "The Fish Story" that Irwin A. Schiff told his two sons on family car trips[74] and later turned into the classic comic book *How an Economy Grows and Why It Doesn't*.[75] The story starts with three men – Able, Baker, and Charlie – on an island, each making a living by catching fish with their bare hands from the coastal waters. The increased productivity through investments in developing and building tools and machines as well as the evolution of the division of labor are explained quite descriptively, starting with Able having to go hungry for a day to build a fishing net, which then increased his fishing productivity and allowed further real investments.

However, in this story, the fish (a producible, generic consumption good) is supposed to represent *money*. Inflation is described as the government replacing real fish with "fake" ones that have had some of their edible content removed.

The story tries to teach us:

- that there can never be too much of a desire to save,
- that more savings can always be accumulated in net,
- that all saving increases economic security and future opportunities to invest, and

- that anything that erodes the value of people's monetary savings (e.g. inflation, negative interest rates) is evil robbery and destruction of the economy's real wealth.

The interesting part is how easily people accept this story as a description of how saving and investment works in the real world. This is a great example of how susceptible people are to false analogies and misleading conceptual metaphors – especially when they fit well with their pre-existing moral rules of thumb. (See intro chapter III) The fish in the Schiff story is not even remotely comparable to any kind of money in the real world.

Firstly, the fish is mostly "earned" by producing it (catching it) and "spent" by eating it. In the real world, all money is earned from someone else. Neither do we eat money nor consume it in the sense that we consume real consumption goods. We *spend* it to buy consumer goods or services from others. (See intro chapter III) Money isn't *destroyed* in spending it, but merely passed to someone else. Alternatively, we make *real investments* with it, which essentially means buying labor from others to produce production goods or to develop something else of more durable value. (See paradox 5)

Secondly, in the story, everyone can always go fishing and earn a living self-sufficiently, no matter how much others are willing to trade with him. No amount of fishing reduces the availability of fish in the sea. In addition, magically, stored fish remains in edible condition for years without any costly refrigeration.

In reality, most natural resources are privately owned. If no one owned them, they would easily become subject to *the Tragedy of the Commons*: overexploitation due to no one having the incentive to preserve them. A sea with no control of fishing rights easily becomes overfished. Falling fish populations make it much harder to catch fish and reduce the sea's fish yield in the long run as well. (We'll suggest later under paradoxes 10 and 11 that it might make a lot of sense for such limited, vital resources to be collectively owned via the government. However, Irving Schiff was hardly a big fan of collectivizing natural resources.)

Moreover, like all consumption goods, fish decays and has notable storage costs – unlike gold or credit with a lower bound on real interest rates.

Saving does not create money

Regardless of whether we use explicit credit relations or a commodity of limited supply (e.g. gold or bitcoin) as money, additional money is not *created* by saving. Any money that individuals or companies save up comes from someone else. One's income is another's expense or real investment. Total income = consumption + investment. This is also called the "circular flow of income".[76]

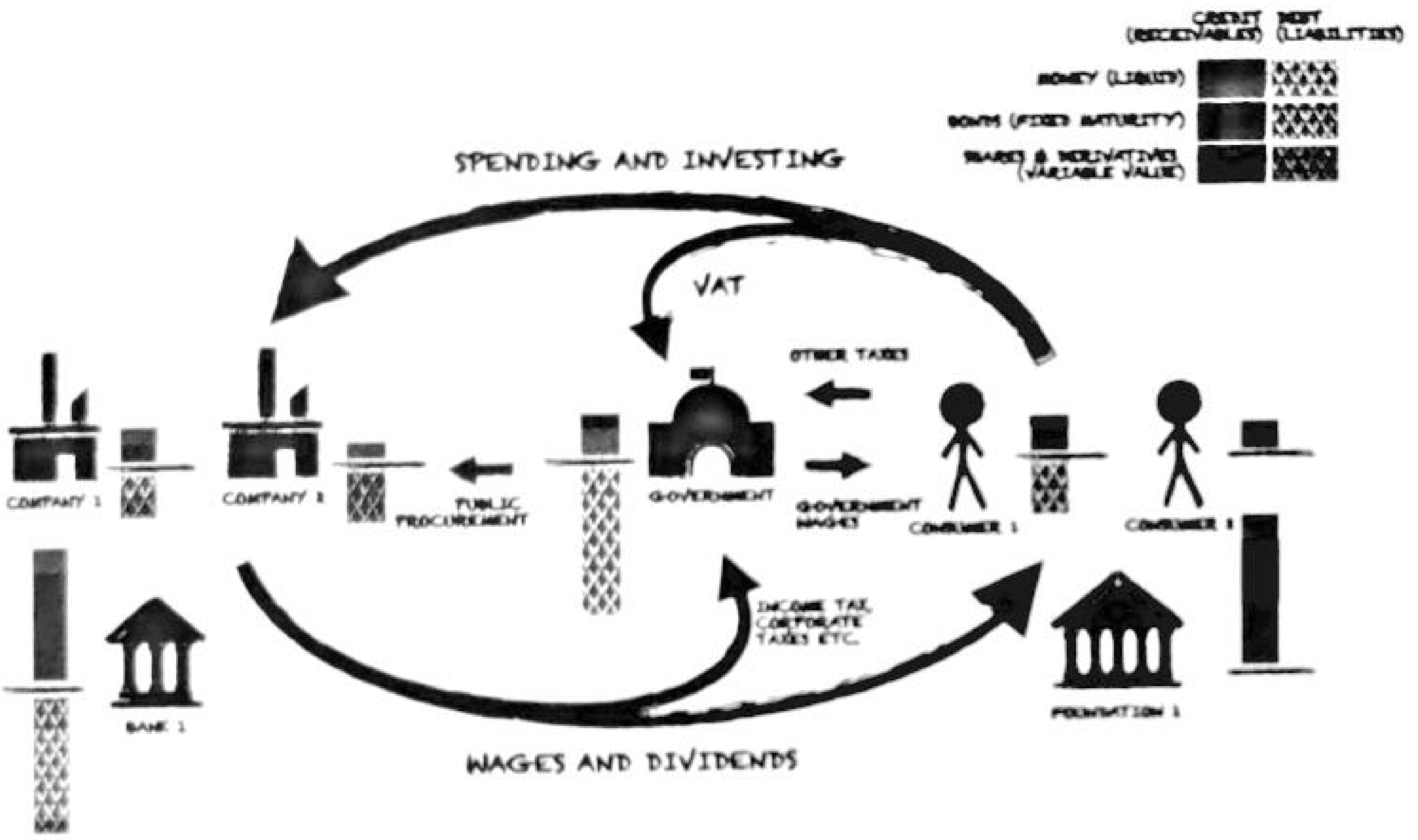
CREDIT (RECEIVABLES)
DEBT (LIABILITIES)
MONEY (LIQUID)
BONDS (FIXED MATURITY)
SHARES & DERIVATIVES (VARIABLE VALUE)
SPENDING AND INVESTING
VAT
OTHER TAXES
COMPANY 1
COMPANY 2
PUBLIC PROCUREMENT
GOVERNMENT
GOVERNMENT WAGES
CONSUMER 1
CONSUMER 2
INCOME TAX, CORPORATE TAXES ETC.
BANK 1
FOUNDATION 1
WAGES AND DIVIDENDS

Image 3: The circular flow of income: how spending and investing determines earning opportunities in an economy.

The exception would be using an edible *and* freely producible commodity as money. However, even advocates of commodity currencies insist that the value of these currencies depends on their *limited quantity* and accept that the "money value" of such a currency becomes highly divorced from any use value the commodity might have had.[77]

Before you go suggesting that we *should* start using fish or grain or some other food commodity as a currency, it is good to remember that food commodities are some of the most volatile resources in our economy due to the low short-term price elasticity of both demand and supply. (See paradox 1) Tying the value of your savings and debts by default to such a volatile resource that only forms a small part of people's total expenses does not make much sense.

Actually, what we most need from a currency is *a stable unit of account for credit relations*. Its overall purchasing power needs to be predictable so that it facilitates *predictable real interest rates*. (See paradox 5)

We have a credit accounting system – not a 'medium of exchange'

Currently, we have a credit money system, where money is essentially credit on other people intermediated via banks. "Having money" just means that other people owe you goods and services.

Though money is an *asset* in the financial sense, it is not a *possession* as such, but rather a credit *position*: Being on the plus side (a "long" position, in finance terms) means others owe you services. Being on the minus side (a "short" position, in finance terms) means that you owe others services.[78] Image 4 demonstrates how banks mediate credit relations between other agents in the economy and how one party's debt is another's asset.

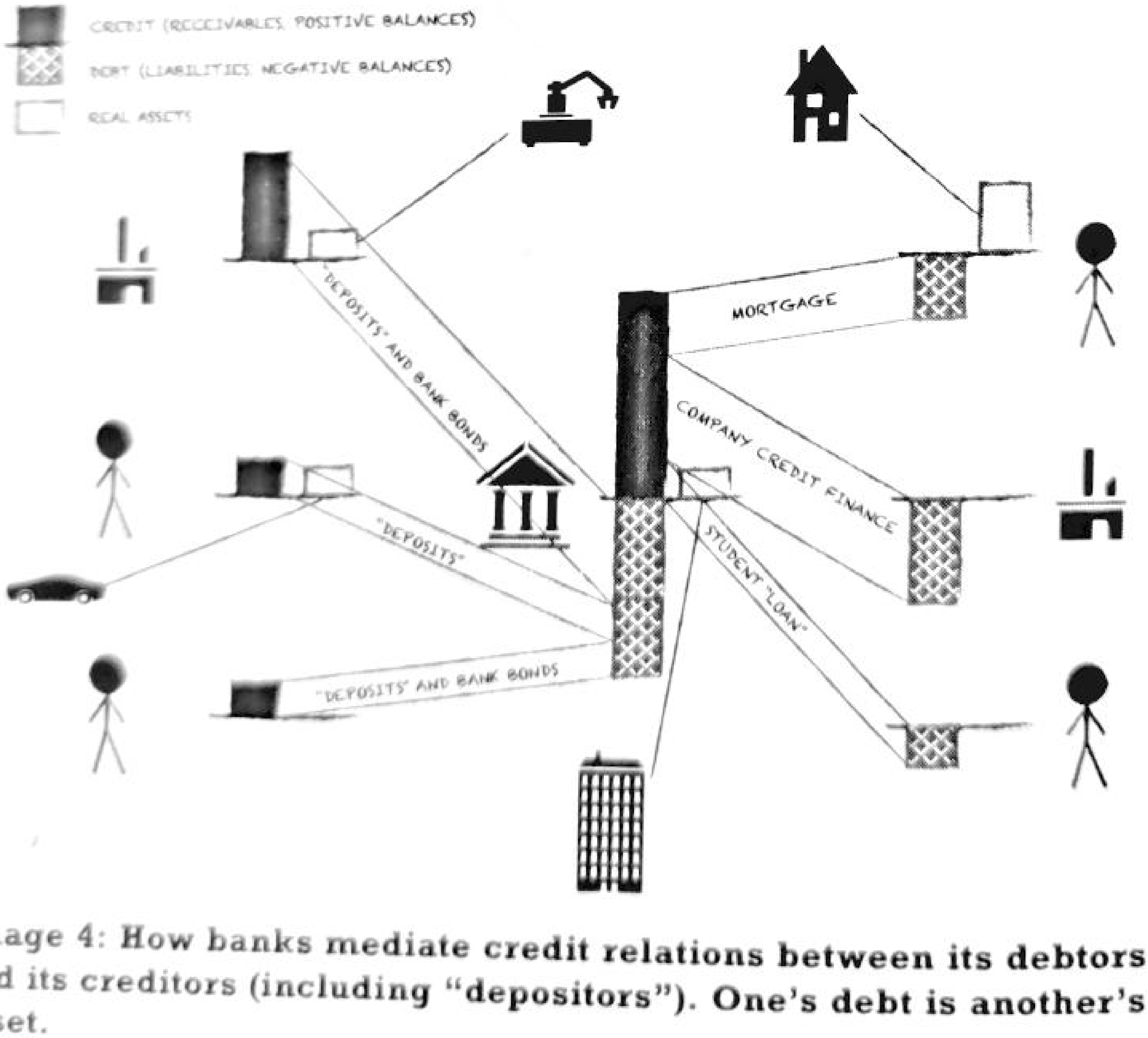
CREDIT (RECEIVABLES, POSITIVE BALANCES)
DEBT (LIABILITIES, NEGATIVE BALANCES)
REAL ASSETS
'DEPOSITS' AND BANK BONDS
MORTGAGE
COMPANY CREDIT FINANCE
"DEPOSITS"
STUDENT "LOAN"
'DEPOSITS' AND BANK BONDS

Image 4: How banks mediate credit relations between its debtors and its creditors (including "depositors"). One's debt is another's asset.

Our monetary system is essentially much like a "time banking" system, except that the debts and credits are not tied to "hours" but the abstract units called the "dollar" or the "euro". This allows the relative prices of different kinds of work to vary, and hence balance supplied and demanded quantities. (See paradox 1) Many time banking systems also lack an interest rate mechanism. Interest is useful for covering default risks (i.e., the risks of debts not being repaid) and for keeping the total (i.e., "aggregate") supply and demand of favors (i.e., "work") in balance.

New money emerges when people take on new credit from banks or anytime a bank pays anyone except another bank for anything. As money *is* essentially only *a bank's debt to the depositor*, a bank "pays" simply by falling more into debt to that party. And it does so by simply raising the number written on the account of that person (misleadingly called a "depositor").[79]

Also our languages support the mental image where working and doing business is "making money" and granting credit is "lending" - i.e., that money is created in productive activity and transferred when banks grant "loans". The reality is the exact opposite: Money is transferred between parties in trade transactions, such as the payment of wages, and it is "created" when banks grant credit.

The value of money is in its purchasing power – it represents credit

It is quite common to consider this system where money can be created "out of nothing" (*ex nihilo*) a big fraud. So did Irwin Schiff. But this is merely one symptom of the misleading perception we have of money as a commodity, a substance, or some other form of real wealth.

Think about it for a second: What is the value of money to you? The value of fish is that you can eat it for nourishment and maybe culinary experience. That's actual use value. But the value of money is the fact that you can expect to get goods and services *in exchange for it* from others in the future. As even the staunch commodity money advocate Ludwig von Mises emphasized:

> "...money has no use-value at all, but only subjective exchange-value."[80]

And that's pretty much the same value as that of any credit you might be holding on an acquaintance! The word *credit* derives from the Latin word *credo*, meaning faith or trust. The value of credit is based on the trust that others will give you something of value in the future.

Therefore, other people's debt – their promise to provide labor, goods, or services – is actually the best possible back up for the value of any money. All a working monetary system needs is:

- that someone agrees to carry the risks of all those debt relations and
- that the risk-free real interest rate can keep the amounts people *want to* be in debt in balance with the amounts they *want to* be owed, by e.g. holding monetary savings.

In the current system, private retail banks essentially *aggregate* credit relations and price the risks of individual debt contracts. As Alfred Mitchell-Innes put it already in 1914, presenting his *credit theory of money*:

> "A banker is one who centralises the debts of mankind and cancels them against one another. Banks are the clearing houses of commerce."[81]

The central bank is responsible for keeping the desired debt and credit balances (and hence the labor market) balanced by controlling the risk-free real interest rate.

(Again, I avoid the misleading word "loans" for a reason: Debt is not about "lending" or "borrowing" money – see paradox 7.)

Money is not stored work or net wealth

Now that we understand that money is essentially "a zero-sum game", we also understand that net monetary wealth in the world or in any closed economy is *zero*. This is a mathematical identity arising from the definitional fact that all debt is *to someone else*. Robinson Crusoe and Friday by themselves on an island cannot become net indebted or hold net credit (receivables). Whom would that credit be on? Any credit Robinson holds is inevitably Friday's debt. Any "money" Robinson might be holding only has value as assumed purchasing power on Friday's labor and possessions.

It is quite common for right-wing politicians and activists to talk about debt without mention of whom that debt is to. For example, Irwin's son Peter Schiff likes to talk about "phoney economic growth" that is based on "debt-fueled consumer spending",[82] forgetting to mention that we cannot consume products or services that have not already been produced. The increased debt is necessarily *facilitated* by someone else saving up credit – either the rich in the same economy or people in other economies. If it weren't, the result would be an overall labor deficit.

Even if we used a commodity money of limited supply, like gold or bitcoin, the amount of money still isn't increased through working, entrepreneurial activity, or any other kind of trade. Gold is often suggested for a commodity currency precisely because its supply is very *price-inelastic*. It is produced in fairly predictable quantities.

The mathematical identity remains that there is always a payer and a receiver in every transaction. One's income is another's expense (or real investment).

In our current credit money system, money is by definition a zero-sum game: All debt is to someone else, and hence net debt is zero. In a commodity money system, it would still remain nominally a fixed-sum game. The *market capitalization* – i.e., the total market value of all units on the market – of gold or bitcoin can of course increase. But this is by no means an increase in real wealth or living standards. A commodity currency of limited supply (with no significant use value) is essentially a constant speculative *bubble*. Unless governments require taxes to be paid in it or landlords require their lease fees in that commodity, (see paradox 11) there is nothing that prevents its market value from crashing and this "money value" evaporating.

Investments facilitate saving and vice versa

Even though people like to think of money as a "store of value", money is not somehow magically stored work on the level of the whole economy.[83] You cannot send a $100 bill to work on Monday to do your job on your behalf. Nor is any money useful to a person who gets stranded alone on an island. Money merely stores wealth for the individual as credit on others – as power over others' labor.

From this we can draw the conclusion that *net* wealth in a closed economy can only increase as *real investments* – producing some assets of real value with labor (see paradox 5) – or as rise in the market value of existing assets. (See paradoxes 9, 10, and 12) And the global economy *is* a closed economy, "as long as trade with Mars and Moon remains limited", as Joseph Stiglitz put it.[84]

Investments facilitate saving just as much as saving facilitates investments. (An open economy can of course also save by indebting other economies, but that is not very sustainable in the long run, as will be explained under paradox 16.)

Excessive desires to save deprive others of earning (and hence saving) opportunities

So what happens if people nevertheless want to save more than then there is real investment going on in the economy?

Saving essentially is the difference between earning and spending. And as people cannot be forced to spend, the outcome of excessive *desires* to save is that not everyone gets to *earn* as much as they would want to. In the current situation (where work is practically quantized into "jobs", a human being is the unit of labor) this means more involuntary *unemployment*. However, it can also mean involuntary *underemployment*: People not getting to work full-time even if they wanted to.

This is called the *paradox of thrift*: By trying to save more, all the people in the closed economy essentially end up being able to earn and save less! Both unemployment and increased income insecurity reduce overall consumption, (see paradox 15) which results in further decreased profitable real investment opportunities. And real investments essentially determine net saving possibilities in a closed economy.

The version of this where, instead of reducing spending, everyone tries to work more has been named the *paradox of toil*.[85]

If we really wanted to make it possible for people to save more (without indebting other nations – see paradox 16), we would have to make sure that the overall desires to save are in balance with profitable real investment opportunities.

Profitable investment opportunities are strongly affected by available technologies and expected future consumption. But the final balancing factor should be the risk-free real interest rate.

The reason the interest rate can balance the economy is that lower interest rates both discourage saving and lower the costs of capital. (See paradox 5 and Image 5) Lower costs of capital increase the profitability of all investment opportunities *ceteris paribus*. They especially increase the profitability of investments that are only expected to yield benefits in the distant future, that is, investments with *high capital intensity*.[86] This includes for example big infrastructure projects and R&D in pharmaceuticals.

Capital intensity is essentially *how much beforehand* all the work needed to produce a good is done on average. Hence the unit of capital intensity is years (or any other unit of time)!

If you take all the work done in the whole supply chain of producing a car from scratch, calculate a weighted average of the timing of that work, and subtract it from the moment when you actually get a working car to drive, you get the total, real capital intensity of car production. Suppose you can build a machine that lasts 8 years with no maintenance work and produces a constant flow of gizmos (a fictive product) by itself. Building the machine (including all its components) takes 2 years with a steady labor input. In this case, the capital intensity of producing gizmos would be 5 years (2/2 + 8/2 = 1 + 4 = 5)."

When the costs of capital (i.e., the costs of delay and risk) are high, capital-intensive projects require high returns to be worth making.

Use it or lose it – time and labor are best saved by using them (better)

Remember that *time* cannot be saved up by storing it in a jar. The only way to "save time" is to use it more efficiently and valuably. Time is wasted when it is *not* used.

Labor, for a big part, is the allocation of people's time for a productive activity (though it does not always make sense to *measure* work in hours). Similarly as time, work cannot be stored into a piggy bank.

You cannot wash the whole years' dishes "out of the way" in January.

We can "save" work by using it more efficiently, i.e., increasing productivity.

We can do some work in advance that provides benefits in the future, i.e., we can make real investments. But the opportunities to do that depend on the capital intensity of used technologies.

As individuals, we can also do work in advance by doing more than our share of work now, i.e., by earning more than we spend. But such monetary saving requires that someone else is willing to do *less* than their share now, to take on debt.

On the other hand, production (work and investment) without consumption (i.e., utilization and enjoyment of the produced outputs) is pure waste. (See intro chapter III)

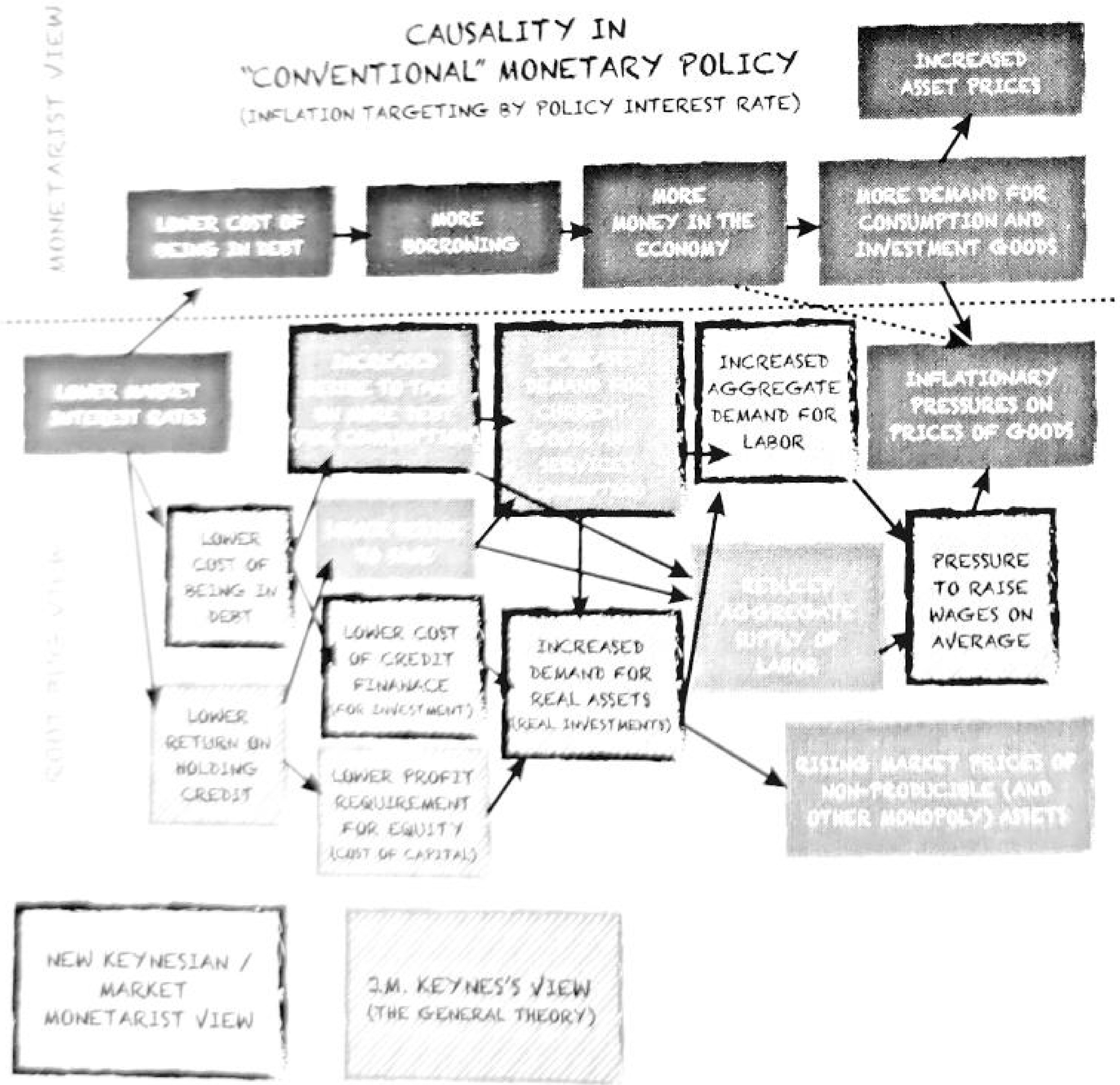
MONETARIST VIEW
CAUSALITY IN
"CONVENTIONAL" MONETARY POLICY
(INFLATION TARGETING BY POLICY INTEREST RATE)
INCREASED ASSET PRICES
LOWER COST OF BEING IN DEBT
MORE BORROWING
MORE MONEY IN THE ECONOMY
MORE DEMAND FOR CONSUMPTION AND INVESTMENT GOODS
LOWER MARKET INTEREST RATES
INCREASED AGGREGATE DEMAND FOR LABOR
INFLATIONARY PRESSURES ON PRICES OF GOODS
LOWER COST OF BEING IN DEBT
REDUCED AGGREGATE SUPPLY OF LABOR
PRESSURE TO RAISE WAGES ON AVERAGE
LOWER COST OF CREDIT FINANACE (FOR INVESTMENT)
INCREASED DEMAND FOR REAL ASSETS (REAL INVESTMENTS)
LOWER RETURN ON HOLDING CREDIT
LOWER PROFIT REQUIREMENT FOR EQUITY (COST OF CAPITAL)
RISING MARKET PRICES OF NON-PRODUCIBLE (AND OTHER MONOPOLY) ASSETS
NEW KEYNESIAN / MARKET MONETARIST VIEW
J.M. KEYNES'S VIEW (THE GENERAL THEORY)

Image 5: The causal relation between the interest rate and inflation pressures.

Fiscal stimulus – allowing people to indebt themselves via the government

This chapter about the impoverishing potential of excessive frugality would not be complete without a brief autopsy of The Austerity Debate, the one between the right and left regarding public sector deficits.

One way of dealing with excess private sector desires to save is compensating for them by the public sector taking on more debt. This is the idea in *fiscal policy*.[87] *Fiscal stimulus* packages mean the government spending and investing more when the private sector invests less.

The Post-Keynesian school of economics takes this idea to the extreme. It almost completely rejects the effectiveness of monetary policy and suggests that the government should continuously "steer the economy" with *functional finance*: adjusting taxation and spending to maintain "sufficient aggregate demand" for full employment.[88] Some Post-Keynesians suggest that this should not be merely done by adjusting the timing of public investments, but that the government should act as an "employer of last resort", giving work to all those unable to find it on the market. This would provide a "true minimum wage", which would also prevent wage deflation.

Essentially, fiscal stimulus is about *facilitating excess private sector saving* by the government taking on debt. Sure, this can prevent the economy from collapsing into a depression by granting people the desired earning opportunities. But it makes little sense when the alternative would be balancing the private economy: dropping real interest rates negative to quench these excessive desires to save or turn them into more long-term-oriented real investments.

Fiscal policy can hence also be considered one way to sustain the minimum wage of capital and higher returns to owners – along with wage regulations and other factors that maintain a higher balance interest rate. (See paradox 18)

Also, if the balance interest rate has turned negative for the long-term, such a fiscal approach could lead to a continuing accumulation of public debt. This has arguably been the case in Japan for over two decades and most of the Western world since 2008. Even in such a situation, fiscal deficits can effectively prevent unemployment and deflation pressures. However, the government's ability to prevent accelerating inflation pressures by raising taxes is less certain – especially when the private sector has accumulated lots of monetary savings and the public sector holds most of the debt.

The speed at which people can save is limited by their income and their vital expenses. However, their ability to spend off their savings is not limited in this way. And the same also applies to the government: The sums that the government can "tax off the market" are limited. The destabilizing effect of high government debt and excessive amounts of liquid credit on the market are returned to under paradoxes 8 and 19.

John Maynard Keynes himself considered the risk free interest rate governed by the central bank ("the rate of discount") to be the primary mechanism for balancing the economy.[89] Yet, he was not convinced that the interest rate would be enough to balance the economy under severe economic insecurity.[90]

However, Keynes's analysis did not consider:

1. the possibility of the central bank being able to effectively lower real interest rates negative, nor
2. the possibility that income security could be "decoupled" from aggregate demand. (See paradoxes 14 and 15)

"That wealth consists in money, or in gold and silver, is a popular notion which naturally arises from the double function of money, as the instrument of commerce and as the measure of value." ... "A rich country, in the same manner as a rich man, is supposed to be a country abounding in money; and to heap up gold and silver in any country is supposed to be the readiest way to enrich it." ... "Others admit that if a nation could be separated from all the world, it would be of no consequence how much, or how little money circulated in it." - Adam Smith[91]

7. Increased Saving Does Not Automatically Lower Interest Rates

"The process by which banks create money is so simple that the mind is repelled." - John Kenneth Galbraith

No automatic market interest rate mechanism exists

It is quite common for both anarcho-capitalist libertarians and even anti-capitalists to demonize the Fed and other central banks for "manipulating interest rates". Many insist that we should let the markets determine interest rates.

Unfortunately, no such working automatic market interest rate mechanism exists.

The market for risks and risk premiums on individual credit contracts surely works just fine. However, there is no "natural" feedback mechanism that would make the risk-free interest rate keep the macroeconomy, the total supply and demand for labor, in balance. If you can come up with one that effectively prevents cyclical unemployment and keeps the price level predictable (see paradox 8), I would be all for it!

Irving Fisher presented one model of such a mechanism in his *Theory of Interest, As Determined by Impatience to Spend Income and the Opportunity to Invest It*.[92] This mechanism is a formalization of how most of us would think the interest rate works based on the misleading "money lending" perception of banking: that debt is "borrowed money" and that interest is "rent for borrowed money". This is where most textbooks (and, sadly, also Khan Academy) are mistaken to begin with.

The crucial requirements Fisher pointed out for the functioning of this mechanism were that:

1. all debts are paid back - i.e., that no credit defaults occur - and
2. that markets are "cleared".[93]

And that's not all. When we go deeper into what this "markets are cleared" means, we find a number of other underlying assumptions.

By "markets clearing", Fisher meant that all money saved in banks is lent on to willing borrowers.[94] The mental image behind Fisher's model is one of a world where money is physical cash, notes and coins, and where all transactions are conducted with such cash. Fisher also implicitly assumes that the *circulation velocity* of this cash would be a constant – that it would exchange hands at regular intervals. This Quantity Theory of Money is not a based on very realistic assumptions, as will be explained under paradox 8.

In Fisher's fictional world, money is only deposited at a bank for longer term saving, and no direct transfers between bank account entries are allowed. Bank credit is also actually granted as "loans" of cash. Taking a mortgage would mean going to the bank and hauling a gym bag full of borrowed bank notes to the seller of the apartment.

As explained under paradox 6, this is not the way we use money nowadays. Most of our transactions are conducted as direct transfers between bank accounts, commissioned via credit and debit cards or internet banking services. Almost all money is on bank accounts, regardless of how fast it is spent, i.e. passed on to someone else. Saving does not by any means make more money available for lending. It just means that the money switches accounts less often.

On the other hand, when a bank grants you e.g. a new mortgage, no money is removed from the banking system. The bank simply increases the number on your bank account in exchange for your debt obligation to the bank. This is completely "new money". Money *is* simply credit on the bank: banks' debt to "depositors" (a misleading term). Existing "deposits" don't limit the granting of new credit in any way.

(Theoretically, granted credit could be capped with strict *reserve requirements* combined with the central bank refusing to issue new central bank money by granting new credit to retail banks. However, this has almost never been the case and it would not be enough to provide a working interest rate mechanism either.)

Hence, an increased desire to save does not affect interest rates in any way, and neither does the amount of credit granted previously. We could say that the *interest-rate-elasticity* of the supply of risk-free credit is *infinite*.

New credit relations can be created at will. It just depends on how much people want to owe each other via the banks.

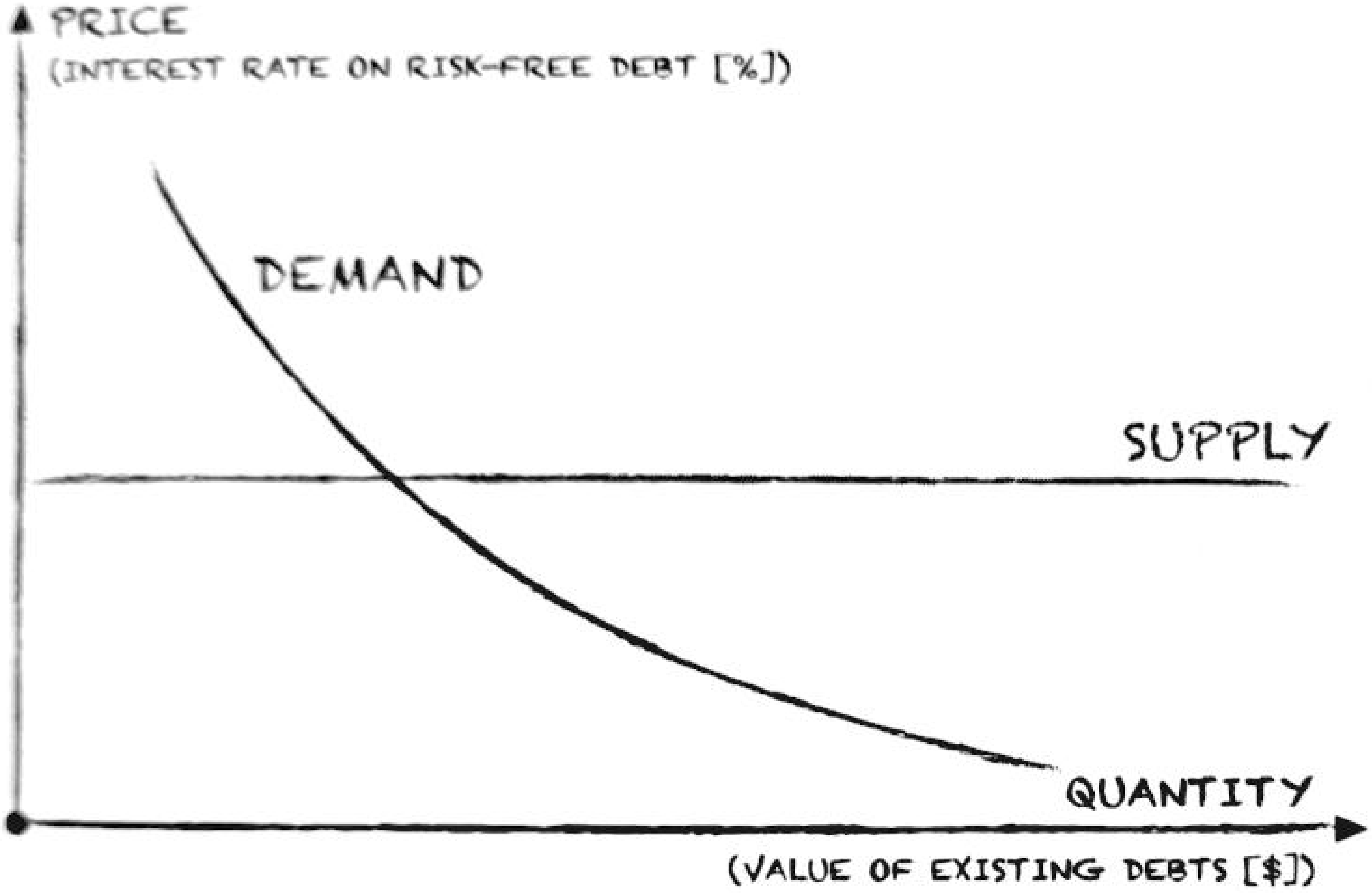

Image 6: The supply of risk-free credit in our current monetary system is infinitely interest-rate-elastic

Debt is not borrowed money – money is just one kind of credit

So, no: debt is *not* borrowed money. Interest is *not* "rent" for money.

Credit and interest can exist even without money. If I promise to give you a 60 minute massage in a year's time in exchange for a 50 minute massage now, that is a credit contract with 20 % interest right there (assuming that the market value of both of our massage services is the same). If a farmer provides his neighbor 4 sacks of grain in return for 3 sacks of the next year's harvest, that is a credit contract with -25 % interest. No money is involved at any point.

Credit is essentially a promise of a good or service in the future. Money is just one form of credit: an expectation of getting something from others in the future.

Interest is essentially compensation for delayed payment. It compensates for the risks involved (the risk premium) and delay itself (the risk-free market interest rate). And by "payment" we mean delivery of real goods and services. Repaying a debt with money is just replacing one kind of credit with another – replacing your direct debt with the bank's debt. Repaying a debt to a bank with money on your bank account is "extinguishing" two credit contracts against each other – the deposit and the loan contract.

It is crucial to see the difference between *owing someone something* (debt) and *borrowing an item from someone* for a time period. If I borrow your frisbee for a week, the frisbee is essentially *your frisbee* in my use. However, if I give you a massage now in exchange for a massage from you next week, you are not "borrowing" a massage that I own – there is no "my massage in your use" for a set period of time. Even if I "lent" you some sugar now, that is a very different thing from lending my frisbee to you. You don't expect to get back the same bag of sugar. The ownership of that bag of sugar has been transferred to you in exchange for the promise of receiving (any bag of) sugar from you in the future. With actually *borrowing* a frisbee, ownership of the frisbee is not transferred. Money is comparable to *a promise* of sugar, a massage, or anything else of market value.

So what then determines the interest rate? Currently, the central bank does.

The central bank's *policy interest rate*, for example the Fed's *federal funds rate*,[85] is the rate at which the central bank wants retail banks to grant overnight credit to each other. In practice, the central bank controls this rate through *open market operations* (or threats thereof), which means essentially buying retail banks' bonds, granting them credit directly.

If the central bank wants interest rates to fall, it simply starts "lending" to banks cheaper – i.e., paying higher prices for banks' bonds – and paying lower interest on their deposits of central bank money.[86] As a result, banks will also be willing to pay each other and depositors less interest for credit. When banks get overall cheaper credit, competition between them also pushes down the rates at which they grant credit to their debtor clients (e.g. mortgage "borrowers").

Finance does not mean 'giving money', but carrying risks

Yes, banks do compete over deposits. But the reason is not that not getting enough deposits would prevent them from granting new credit.

Deposits are of course *a source of finance* for the bank - a kind of credit finance. But *finance* does not mean "giving money". Rather, it means accepting someone's debt or otherwise agreeing to carry the risks of a project or company. For example, entrepreneurs can "finance" their startup company with "sweat equity": working for the company without immediate monetary pay, but instead receiving shares or stock options. This is another form of finance that does not involve "giving money".

By agreeing to have your deposits "in" a bank, you agree to the bank owing you. Deposits (as they are misleadingly called) are nothing but accounts of how much the bank owes the account holders. And, again, "owing" does not mean "owing money", but owing real goods and services accounted in the currency in question. You can expect to get those goods and services from the bank's debtors, when they work to pay down their debts - just like in a time banking system that accounts for favors in "hours".

In addition to its "depositors", the bank can also owe other banks, holders of the bank's bonds, or the central bank. Deposits are by no means the *only* sources of finance. However, they are often the cheapest source of finance. It is also much easier to sell other banking services to your deposit customers, and this makes it often profitable to compete over depositors with higher rates or other perks.

Commodity currencies are inherently unstable – and means of usury

As said, desires to save do not affect nominal interest rates directly. What they do affect is the overall demand and supply of labor. And this has implications for overall pressures to raise or lower wages, which then affects the nominal prices of goods and services. (See Image 5)

As explained, the *real* interest rate - how much the purchasing power of people's savings change – is also affected by expected inflation. Hence, in a "free market" with a commodity currency of limited supply, the real interest rate feedback mechanism is actually positive, i.e., self-reinforcing! An excess desire to save causes nominal wages and prices to fall, raising real interest rates, which further encourage saving. (See Image 7)

Even if there existed a market interest rate mechanism that would make banks lower nominal rates on savings and "loans" when desires to save increase, it would be very hard for it to offset the effect that *deflation expectations* have on real interest rates – especially when the existence of cash prevents the nominal rates from turning properly negative. But actually that nominal interest rate mechanism doesn't even exist!

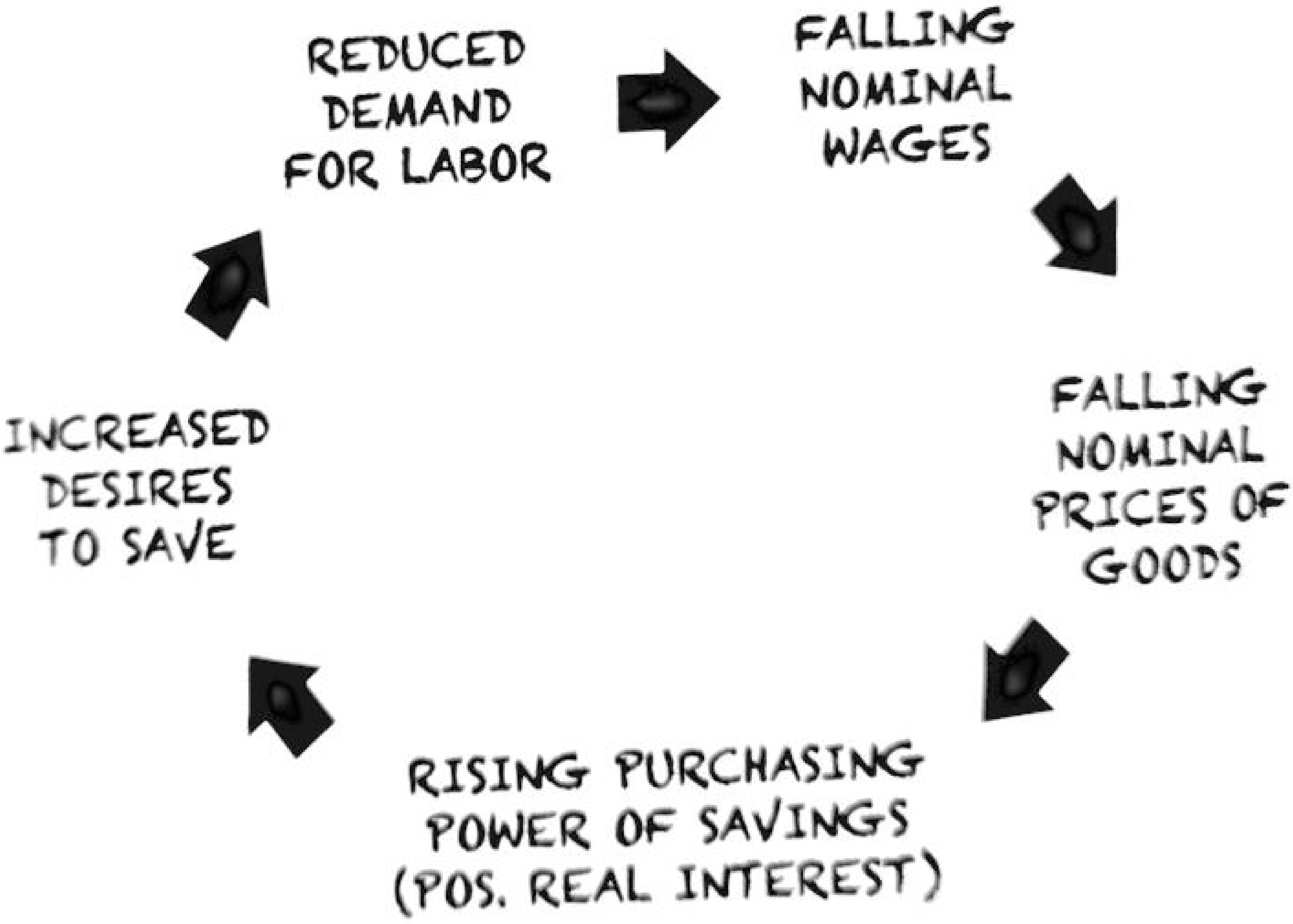
REDUCED DEMAND FOR LABOR
FALLING NOMINAL WAGES
FALLING NOMINAL PRICES OF GOODS
RISING PURCHASING POWER OF SAVINGS (POS. REAL INTEREST)
INCREASED DESIRES TO SAVE

Image 7: The self-reinforcing real interest rate mechanism caused by deflation expectations.

That is why we do need a central bank or some other mechanism that reacts to inflation and inflation expectations by raising interest rates and vice versa. As said, if you can come up with a monetary system that allows keeping aggregate supply and demand in balance automatically, the author would be very interested in hearing about it!

The 'real balances argument' is usury on steroids

For example Murray N. Rothbard and Phillip Bagus believe in a balancing *real balances mechanism* that would stop such a deflationary chain reaction - instead of a *real interest rate* mechanism. The idea is that, when there is an excessive desire to save, that desire should be quenched with the value of existing monetary savings rising to "the desired level" or "expected level" through deflation.[97]

Firstly, it is likely that those with the least monetary savings and with the most debt are the ones most desperate to earn and raise their monetary savings balances. This mechanism does not meet their desire to save. Quite the contrary, it multiplies the real values of their debts, plunging the indebted, including all entrepreneurs and investors that have employed some credit finance, in yet deeper peril.

Secondly, supply and demand usually works so that if people do or produce too much of something, the price mechanism "punishes" for it, making it less profitable to do or produce it. Perversely, Rothbard's logic says that if people want to save too much, they should be *rewarded* for it, with an immediate windfall gain if possible.[98] The real balances argument is essentially extreme usury - ripping off the indebted.

Thirdly, nothing says that achieving higher "real balances" would actually make people want to save less - that there is a "desired level" after which people would not value additional wealth and purchasing power. This assumes a constantly diminishing desire to save. As we'll see in paradox 8, this is an assumption we cannot make - especially:

- under uncertain economic conditions where everyone has the fear of ending up unemployed or a debt slave in the next deflationary depression,
- when monetary savings can be expected to get such massive returns, and
- with a moral paradigm that considers work and saving inherently virtuous.

As John Maynard Keynes notes:

> "The second differentia of money is that it has an elasticity of substitution equal, or nearly equal, to zero which means that as the exchange value of money rises there is no tendency to substitute some other factor for it; – except, perhaps, to some trifling extent, where the money-commodity is also used in manufacture or the arts."[99]

"[O]ne of the reasons that our technology is impeded and prevented from feeding the world properly is the failure of one of our networks. It's an information network and it's called money – about which we have the most unbelievable superstitions and psychological blocks..." ... "But money and our psychological attitude to money is a major obstacle to a proper development of technology, enabling it to do what it is supposed to do – that is to save labor, and to produce goods, services and so on adequately." – Alan Watts[100]

8. An Increase In the Amount of Money Can Be Deflationary (Make the Price Level Fall)

"There is no justification whatever for the widespread belief that variations in the quantity of money must lead to inversely proportionate variations in the objective exchange-value of money, so that, for example, a doubling of the quantity of money must lead to a halving of the purchasing power of money." - Ludwig von Mises (1912, p. 141)

The two contradicting and false mental images of money

The paradoxy of paradox 6 is caused by the mental image of money as "stored work" and the resulting (possibly subconscious) perception that total wealth increases by people saving up money. The paradoxy of paradox 7 is caused by the mental image of money as something physical that *is* somewhere, that can be *moved* from place to place, and that banks *lend* from depositors to borrowers.

Firstly, it is important to notice how these mental images contradict each other. If money is something of fixed amount that just "moves", saving does not create more of it. Monetary saving is merely refraining from spending what is earned. All earnings come from someone else's spending or real investments.

Secondly, as explained in the respective chapters, both mental images are misleading if not plain false.

Money does not obey Newton's laws

The latter mental image comes with a further embedded idea of how money behaves - or, rather, how people behave in terms of money. (Money itself has no values, desires, or objectives and does not act on its own.) This is the idea of *circulation*.

This image sustains the perception that money is in constant movement, and - as if following Newton's first law of mechanics

- would have a tendency to continue that movement. In reality, transactions only take a split second, and all money is always "at rest" in someone's possession.[101] (Or, rather, as someone's credit balance, as money is not anything physical but a relation. As said, it is more a *position* than a *possession*.)

This perception of circulation is most strongly embedded in the *Quantity Theory of Money*, which still influences economic theory, some investors, and many political movements calling for monetary reform.

You've probably heard the story of how money emerged out of barter to become a universally accepted *medium of exchange*. The Goldsmith's Tale which advocates of commodity currencies like to recount is one example.[102] Austrian economists among others preach fervently that money is *a commodity* and follows the same laws of supply and demand as all other commodities.[103] From this logic follows the idea that an increase in the amount of money has to necessarily make its market value fall. In other words, it has to make the price of everything else in this currency rise.

The mainstream of economic academia has not forgotten it either. "Prices Rise When the Government Prints Too Much Money" is even one of the 10 principles of economics presented by N. Gregory Mankiw in his popular book *Principles of Economics*.[104]

This theory is even incorporated in the very etymology of the term *inflation*. In modern economics, inflation merely means a rise in the general nominal price level. This is measured as changes in the Consumer Price Index (CPI), which observes the nominal price change of a preset and weighted basket of the most common consumption goods and services.

However, the term still embodies the mental image of something expanding without an increase in solid material content, like a balloon or an *inflatable* mattress being filled with air. This is yet another emblem of the misleading *conceptual metaphor* that our languages use for money. (See intro chapter III)

The demand for holding money is not determined by the amount of transactions

It isn't a faulty approach as such to analyze the market value of the monetary unit in terms of supply and demand. The bigger problem is in the Quantity Theory's assumption of what determines "the demand for money".

As explained under paradox 6, money isn't *consumed* the same way as consumption goods are. It is merely earned, held, and spent. The "demand for money" can therefore refer to either people's desire to (1) earn it or to (2) hold it. In the first case, "the supply of money" would then logically mean people's desire to spend it. In the latter case it could mean the existing amount of money or people's desire to be in debt.

("The demand for money" and "the supply of money" are also confusing terms in the sense that, as explained under paradox 1, "demand" and "supply" are quantities *as a function of price*. In the case of money, "price" can mean either the real interest rate or the momentary purchasing power of the monetary unit. As an increase in the purchasing power of money does not reduce people's desires to hold it, it would make much more sense to look at people's desires to hold credit and to be in debt as functions of the real interest rate. (See paradox 5))

The Quantity Theory focuses on the amount of money in existence ("the money supply"). And it assumes that people's desire to hold money is somehow in proportion to the amount of money that they *spend* (or earn) in a given amount of time. This assumption is supported by the mental image of money *circulating* in the economy. It conflates the amount of money that *exists* with the amount of money that is *spent* (and earned) within a year – i.e., the total nominal value of transactions conducted. In other words, it assumes a constant or stably changing *circulation velocity of money*.[105]

The Theory is often presented together with the equation:

$$Yp = MV,$$

Where Y is the real amount of goods produced, p is the overall price level, M is the amount of money, and V is the circulation velocity. No doubt, this equation represents an unquestionable mathematical identity. Essentially, it is the *definition* of the circulation velocity, and it would hence make a bit more sense to write it in the form:

$$V = Yp/M$$

The trouble with deriving the *causal* assumption of the Quantity

Theory from this equation is that the circulation velocity of money ($V = Yp/M$) is a completely artificial variable that has *no tendency whatsoever to remain constant*. We can't even assume it to change continuously. We cannot assume that people would want to keep a set-sized buffer of liquid savings in proportion to their spending, e.g. that people would always want to have on average of 3 months' income on their bank accounts.[106]

This is the implicit assumption behind the Quantity Theory. And it is intuitively appealing to anyone indoctrinated with the idea of money as a *medium of exchange*. (The logic: "Well, the demand for a medium of exchange surely must depend on the amount of exchange going on.") However, reduced to the incentives and actions of individuals, it is completely nonsensical.

Both overall desires to save and liquidity preference can change fast

Looking at money from the credit frame (see paradox 6) allows one to see better that money is not merely a tool for conducting transactions. It is even more a tool for transferring one's purchasing power into the future – for *saving*. And this desire to *postpone spending* relative to earning affects people's desire to hold money much more than their current income or expenses do.

People's general desires to save can vary dramatically. Additionally, their desire to have their savings as liquid money can change in the blink of an eye.[107] Keynes called this their *liquidity preference*.[108]

Both people's overall desires to save and their liquidity preferences are affected by many factors. One factor that can change very quickly is perceived economic security, especially the certainty of future income. (See paradox 15) When an economy threatens to fall into a recession (see paradox 14), people expect:

- higher risks of unemployment (see Image 11),
- lower returns on real investments,
- deflation pressures, i.e. a fall in prices and wages (see Image 7), and hence
- higher real interest rates.

All of these factors understandably increase people's desires to save *and* reduce their desires to hold risk-bearing financial assets or real productive assets directly. Simultaneously, it can halt a majority of companies' real investments, as there is already presumably overcapacity in most sectors. (See paradox 14)

With high economic security and high expected returns on real investments, people's desires to hold liquid buffers of credit can be quite low.

With today's liquid financial markets, the circulation velocity of money could theoretically be millions (of times per year). In order to conduct transactions, people don't need to have any of their savings as liquid deposits. You can have all of your savings invested in e.g. stocks, bonds, and ETFs (Exchange Traded Funds), and an automatic trading algorithm can sell the appropriate amount of financial assets at the moment when you buy your coffee at the kiosk with your debit card. The party receiving the payment can immediately buy another financial asset off the market into its portfolio. "Money", as in liquid bank account deposits, is only needed for the split-second moment of each purchase transaction.[109]

This is not to say that people *should* hold such minimal balances of "money" (though excess liquidity might destabilize the economy, as will be explained). The point is that it is very *possible*. Hence, the amount of liquid credit in the economy does not determine or limit the amount of trade in any way.

Arguing that the economy cannot grow without the amount of money growing - as e.g. money reform advocates like to argue[110] - is like arguing that the amount of computations performed by a microprocessor cannot grow without the momentary charges in the processor growing. Just like processors can conduct billions of calculations with small changes in microscopic electric charges, we could, theoretically, trade trillions of dollars worth of goods and services without anyone accumulating large balances of liquid credit.

We can't assume a diminishing desire to save

On the other hand, there is no set upper limit to how much people can be willing to save up - overall or as liquid, risk-free deposits. An empirical case example is Japan. For the past 25 years, the amount of money (measured in all monetary aggregates[111]) has grown continuously,[112] while the nation's real economy has stagnated, hardly growing at all.[113] Nevertheless, there have been no signs of inflation. The yen has been in deflation for a big part of this time.[114]

The government has been falling further and further into debt to facilitate the private sector's excessive desires to save – desires that have exceeded available real investment opportunities. This accumulation of private savings has *not* reduced people's desires to save further, i.e., their willingness to earn more than they spend.

Interestingly, it was precisely the Quantity Theory that Keynes was referring to in the oft-quoted passage from *A Tract on Monetary Reform*[115] stating that "in the long run, we are all dead." However, looking at Japan, the Quantity Theory should be dead on all time scales.

It is of course possible that the accumulated liquid private sector savings and the reduction in private debt will eventually result in *hyperinflation*. The monetary savings are essentially claims on goods and services produced by others. If everyone wanted to "cash in" (maybe this should rather be "cashing out" or "producting in") on that promise immediately by spending their savings on goods or taking a holiday, aggregate demand could suddenly spike above supply. The fear of rising prices could become a self-fulfilling prophecy.

The risk of this kind of chain reaction is smaller (a) when a lot of the credit has a longer maturity and (b) when there is more *private* debt backing up the credit. When most credit savings are as long-maturity bonds (a), people have to sell those bonds before being able to spend their savings. Not everyone can do so at once, as someone would have to agree to buy those bonds, too. When significant amounts of private debt exist (b), the debtors can be encouraged/forced to save more by raising interest rates if necessary.

However, we cannot assume that an increase in the amount of money will immediately result in inflation pressures.

Let's emphasize that the hyperinflation would not be a "correction"[116] back to some "normal velocity of circulation". It would likely destroy the value of the currency completely, as happened in Zimbabwe and the Weimar Republic.[117] In these cases, people's desires to hold money did not suddenly fall or become satisfied. Rather, people completely lost their faith in the currency unit's ability to maintain its purchasing power.

Instead of the Quantity Theory of [the purchasing power of] Money, we could have an "instability theory of excess liquidity and public debt". (We'll return under paradox 19 to how a deposit guarantee fee could minimize this amount of excess liquid credit.)

Debt can cause 'demand for money'

Now, the title of the chapter proposed that an increase in the money supply could actually be *deflationary* – that it could impose *downward* pressures on the price level. Japan does not quite yet prove this point. Though evidently people's desires to save have not been quenched by previous savings, we cannot show that this saving would actually have *increased* people's desires to save. (Of course, it is possible. For many people, gathering wealth is a kind of "game" in itself, and success at a game can increase one's motivation to play that game yet harder. Take for example weight loss or trying to develop a new habit.)

In Japan, the increase in the money supply has been mostly led by the public sector falling into debt to facilitate excess private sector saving.[118] However, in Western economies, most of our money emerges out of private credit contracts mediated by private retail banks - *credit expansion*, as it is often called. This kind of credit expansion can very well be argued to have possible deflationary effects in some situations.

Among others, many Austrian economists insist that both *quantitative easing*[119] conducted by the central bank and credit expansion by private banks would necessarily have to be inflationary, as they increase the money supply without growing the real economy or the quantity of any underlying "money metal".[120]

What they omit is that when new money is "created" by a bank granting a "loan", also a private *debt* emerges to match or exceed the amount of money, liquid credit. (See paradox 7) And this private debt causes an increased "demand for money", in the sense of *a desire to save*. The debtor needs to save up money, i.e., to earn more than he spends, in order to pay off the debt and to service the interest on that debt.

It might well be that the person who ends up holding the new credit, e.g. the previous owner of a sold house, is far less in a hurry to spend off his savings than the person with the mortgage is in a hurry to pay it off. As a result, the "creation" of new money in the issuing of this new mortgage might increase the overall supply of labor more than it increases demand for it! Hence, it might apply more downward pressure on wages and prices, i.e., it might be "deflationary". This is especially likely to be the case if interest rates are high.

The same applies to consumption loans and business loans. The workers getting paid for building a sailing boat might want to save up a big part of what they earn (for e.g. retirement, their children's college tuition, or simply "a bad day") while the person who bought the boat might want to pay off the debt rather quickly.

The mental image of the Quantity Theory is that "X amount of money 'chases' Y amount of produced goods and services". So when X (the amount of money) increases without Y increasing (the economy growing), the value of a unit of money would have to fall. It would more accurately depict reality to say that "Z amount of mortgages and other debts chase X amount of money".

Especially under high interest rates and/or significant economic insecurity, there is nothing to guarantee that an increase in the amount of credit contracts would necessarily result in the demand for labor increasing relative to its supply. In the end, the real interest rate is the more relevant factor keeping desires to save in balance with profitable real investment opportunities. (See paradox 6)

That is why it makes a lot of sense that the central bank attempts to keep inflation stable by controlling overnight interest rates. Contrary to what many textbooks still say and many economic theories still assume, this has hardly anything to do with controlling "the money supply", the amount of money in the economy. (See Image 5) The money supply is *endogenous* to monetary policy, meaning that it is largely determined by the market, and the central bank has little direct control over it.

The Taylor Rule is a monetary policy rule that is considered to reflect pretty accurately the way that many central banks set their policy rates in practice. The formula does not involve any monetary aggregates (i.e., quantities of money) at all. It determines the policy interest rate based on observed inflation and the "output gap", often reflected by the unemployment rate.

Inflation is driven by pressures to raise nominal wages

Inflation is essentially mostly driven by overall pressures to raise and lower nominal wages. The only other factors than can affect the price level in the long run are:

- Changes in labor productivity, and
- A change in the income share of capital.

Overall labor productivity tends to increase pretty stably. Sudden leaps are unlikely, as they would have to involve many large sectors of the economy simultaneously. (See paradoxes 2 and 3)

In the longer run, we can also assume that competition keeps the income share of capital in check. (See paradoxes 5 and 18) Whether or not and how much the income share of capital follows changes in interest rates depends quite a lot on the existence of private monopolies and privileges as well as the control of limited resources. (See paradoxes 10, 12 and 13)

In the shorter term, sudden swings in the prices of natural resources and highly volatile commodities like food and energy do occur. The profits in these industries are thereby also highly variable (unless they are *hedged* e.g. by selling forward contracts – see paradox 11).

As the function of monetary policy is (1) to keep the purchasing power of the monetary unit predictable (in the medium term) and (2) to keep the aggregate supply and demand of labor in balance, it makes sense to exclude these most volatile resources from the targeted inflation measures. The measure that excludes these most volatile components is called *core inflation*.[121]

Alternatively, CPI measures can use a longer-term average for these resources. This allows accounting for actual changes in labor productivity and wage levels in these sectors.

So, essentially central bank monetary policy is about keeping the total supply and demand for labor in balance. One reason for why the official objective needs to be keeping inflation stable is that without predictable inflation, *real interest rates* are not predictable. (The real interest rate is the nominal interest rate minus expected inflation.) This would make monetary policy hard to conduct, as real interest rates are what matter for people's desires to save and for real investment decisions. (See paradox 6) Monetary policy is as much, if not more, about controlling *inflation expectations* than the actual changes in the CPI.[122]

Of course, the pressures to raise or lower wages are also affected by other things than the real interest rate. This includes wage regulation and cultural issues, such as how accustomed employees are to bargain for higher wages.[123] Also, in addition to the interest rate, the supply of labor is strongly affected by the availability of social security. We'll return to these factors and their neglected implications under paradox 18.

"The quantity theory, which, with unimportant limitations, holds good of all wares, has been applied to money. It has been stated that the price of money is determined by the stock of money. But experience has shown that the supply of money is not so dependent upon the stock of money as this statement of the quantity theory assumes. The stock of money often remains unaltered, but the supply of money is subject to great variations." – Silvio Gesell, The Natural Economic Order (1916, Part 3, Ch. 15)

9. Money Does Not 'Flow into' Investment Goods or Financial Assets

"If the work of money is circulation, then money is always 'idle' because transactions are quasi-instantaneous. ... The transfer [of money] itself occupies a mere moment..." – William Hutt[124]

Confusing commentary about 'money flowing'

The mental image of money circulating and flowing from place to place also plagues our perception of financial markets.

Advocates of monetary reform like to blame credit expansion by banks for bubbles in real estate and financial assets.[125] The logic/story is that the created money goes first into real estate speculation and financial markets and hence raises their prices most. The mental image is that money "flows into" these investment goods to raise their prices.

This same conceptual metaphor[126] is present in financial market commentary and economic journalism. We might talk about "capital fleeing into precious metals",[127] "a mass exit" from the Chinese stock market,[128] or investors (overall) "dumping/abandoning stocks".[129]

What people easily forget when listening to these descriptions of what's going on is that whenever someone sells a stock, a bond, or an apartment in the investment market, someone else buys it – and vice versa. In trading, no net amount of money goes "into" or "out of" an asset class. The sum that one investor gave up to get the asset, another one received.

Only in the case of company A issuing new shares do we have more money flowing into company A in the investment market. Only in the case of real investments do we have net wealth going into real estate. This means building new buildings or renovating existing ones. And even in this case, *the money* does not remain in the buildings, but goes to the companies and workers who do the construction work.

Market prices depend on how much people would be willing to pay

The market prices of investment goods essentially depend on what people are willing to sell them for and what others are willing to pay for them. (See paradox 1)

The rise in the market price of a kind of asset does not even need to involve an increase in its *trading volume* – the quantity traded during a time period.[130] If suddenly no one is willing to sell Apple shares for less than 150 % of what they were sold for earlier, and there is even one willing buyer at that price, the market price of Apple shares rises by about 50 %. No increase in the *amount of money* in the economy or in the financial market is required for this rise to occur.

If possible, the Quantity Theory applies even worse to investment goods than it does to consumer goods. (See paradox 8)

Discounting the expected returns on assets

So what determines how much investors are willing to pay for investment assets?

As explained under paradox 5, the value of investment assets to the holder depends on how much the assets are expected to provide revenue (or other benefits) to the holder in the future. However, when considering these revenues, we have to take into account *time value*, including the perceived risks involved. Expected future cash flows are *discounted* with the investor's profit requirement, i.e., the costs of capital.

If the costs of capital are high, cash flows expected in the distant future are hardly taken into account at all. Near-term returns are more decisive in the valuation. With low discount rates, the future matters a lot more.

And the discount rates are determined by the risk-free interest rate and the risk premiums investors attribute to each type of asset.

Now, it is important to remember that the revenues generated by assets and companies are not set in stone. If the interest rate falls, this, *ceteris paribus*,[131] immediately makes all businesses and individual assets more "profitable" *at currently expected profits* – it raises their *net present value*. But this also means that it is now profitable for businesses to invest in increasing their production capacity and attempting to capture more market share. If competition works efficiently (see paradox 13), this increased supply will lower prices and/or raise wages and other costs so that the average profits of the business conform to the new lower profit requirements of investors.

(Of course, competition never works perfectly, and those companies with a clear competitive edge are likely to continue making higher profits. This will be reflected in the market value of their shares remaining above the *book value* of their assets – the value at which the asset is marked on the company's balance sheet.[132])

Falling rates raise the prices of monopolies the most

The situation is quite different with companies that have a practical monopoly in serving a market, as well as with assets that have no price elasticity of supply, (see paradox 1) i.e., ones that cannot be freely produced with labor. If an increase in the market value of an asset cannot be met with more of it being produced, the returns that the asset generates might not adjust to the lower costs of capital. (They might even rise – see paradox 12.)

If there is no competition to bring down prices or to raise wages, mere lower costs of capital won't lower the profits a company makes. Instead, the company's stock price rises to reflect the higher net present value of the profits it is expected to generate.

Similarly, if we have a limited resource with no substitutes, its market value will likely rise with lower interest rates to reflect the higher net present value of the *economic rents* that can be expected from holding it. (The concept of economic rent will be explained in more detail under paradoxes 10 and 11.)

The value of these kinds of assets and companies are very sensitive to changes in the market interest rate. At low interest rates, even small changes in expected future interest rates or expected growth rates of the revenues generated by the asset can cause large swings in their market value.

Location does not decay or have substitutes

A prime example of such an asset is land, which in an urban setting essentially means *location*. Location:

- cannot be produced with labor,
- has no direct substitutes, and
- does not decay or become obsolete with time.

When one owns a piece of real estate, one actually owns two very different kinds of assets, which are tightly bound together:

1. the buildings and other improvements on it, and
2. the location and the rights to use that location as determined by zoning and construction permits.

If you buy an apartment in a central location or a desirable neighborhood for $500 k and it burns down, the insurance company is unlikely to pay you $500 k in compensation. Even if the building were completely ruined, you would still own the location. Building a new apartment on the lot does not cost $500 k.

Buildings deteriorate and require renovation work from time to time. Construction technology can also evolve and lower construction costs in the future, which should lower the market value of already constructed buildings.

Perpetuities are volatile at low rates

By contrast, location value does not decay or require renovation from the owner. When you are discounting location, you are essentially discounting a *perpetuity* – an infinite cash flow – and often a growing one. With continuing urbanization, central locations in large cities are going to remain extremely valuable with quite some certainty for at least decades to come, if not centuries. The rents that can be collected for such locations tend to rise together with the overall improvements in living standards of the city's population: The more people earn, the more they are willing and able to pay for living in good locations. The higher purchasing power of consumers makes also retailers and other businesses willing to pay more for prime commercial sites.

Even small changes in expected future growth rates or expected future interest rates can cause significant moves in the market value of location, especially at low interest rates. The discounting formula of a perpetuity is essentially an *infinite series*, and is reduced to:

$$V = \frac{P_0}{r - dP},$$

where P_0 is the first year's rental revenue, r is the discount rate, and dP is the expected annual rise in rents.

When the discount rate (r) approaches the expected rate of rise in rents (dP), $r - dP$ approaches 0. Hence, the valuation of prime locations theoretically approaches infinity! In other words, if the discount rates would be expected to remain below the growth rate from now to infinity, no one would be willing to sell centrally located real estate at any price. In practice, this does not happen very easily, because the increased volatility of real estate at low interest rates increases investors' risk premiums, raising discount rates.

When one understands this mechanism, one understands that there is no upper limit to how high the market value of real estate can rise.

Banning mortgages would not prevent housing bubbles

Many blame real estate bubbles on mortgage lending and suggest e.g. higher capital requirements on mortgages as a solution. However, setting limits on mortgage lending would not *prevent* real estate bubbles. In the extreme case where mortgages were completely banned, real estate investments would simply be conducted with *equity* finance, i.e., with the existing savings of investors or funds. Location rents would remain a perpetuity, and the same valuation formula would apply.

The only reason the availability of mortgages (e.g. capital/deposit requirements on them) does affect real estate market prices in the current situation is that homeownership and credit finance are both heavily *subsidized*. Such subsidies include:

- the *tax shield*[133] effect caused by the double taxation of profits on equity (interest on credit is usually deducted before corporate taxes),
- the free guarantee on bank deposits, (see paradox 19)
- the income tax deductibility of mortgage interest,
- tax exemptions on apartment sales profits,[134]
- publicly provided mortgage guarantees and subsidies,[135] as well as

- the fact that owner-occupants don't pay capital income taxes for the housing benefit they get from their own apartment – i.e., the "rents they pay themselves".

In the absence of such subsidies, the availability of mortgages should have no effect on real estate valuations. It would simply reduce homeownership and change the finance structure of real estate investor companies towards a higher weight on equity.

Discount rates matter – not the amount of money

So, essentially it is the interest rate that makes certain asset classes – such as real estate, minerals, and shares of companies in monopoly positions – bubble up. Such financial market bubbles have little to do with the *amount of money* in the economy. What matters is how monetary policy affects the discount rates of investors and their expectations of future revenues generated by different industries and asset classes.

No, *quantitative easing* (QE) is *not* "pumping money into financial bubbles." In quantitative easing, the central bank essentially buys financial assets – mostly bonds of the government or banks – off the market and pays for them with central bank money.[136] If the asset is bought from a non-bank investor, the investor's bank credits the investor's account (i.e., raises the number of dollars on it) while the central bank credits the private bank's central bank account. In the case of buying government bonds, QE is simply replacing one kind of public debt (the bond) on the market with another, more liquid kind of public debt (central bank money).

This of course raises the market value of the purchased assets somewhat. If QE raises the market value of other assets such as company shares, it is because:

- the rising prices of government bonds and the resulting slightly lower yields[137] (returns for holding them from there on) lower discount rates for other asset classes,
- the extra liquidity in the economy causes a small increase in the perceived risk of *hyperinflation*, which lowers expected real interest rates, (see paradox 8) and/or
- the prevailing myth of the Quantity Theory has a placebo effect on investors of raising inflation expectations (though in the case of the announcement of the ECB's bond buying

program, the effect was short-lived.[138])

The idea of money as something that flows from place to place is also present in our perception of global financial markets when we e.g. talk about "capital fleeing" from developing countries. How this distorts our understanding of what determines a nation's or region's competitiveness over investments and production is returned to under paradox 17.

Two dilemmas that solve each other

Paradoxes 5 and 6 declare loudly that a fair, sustainable, and antifragile (see paradox 15) economy definitely needs the possibility of negative real interest rates. Actually, as the interest rate determines the costs of capital and an efficiency-oriented economy aims to minimize costs, good economic policy should aim at keeping interest rates *as low as possible*. This should both make investment more long-term oriented and reduce the polarization of wealth differences. (See paradox 18) Anything else could be considered *rent seeking* on behalf of financial capital. (See paradox 10)

But didn't we just conclude also that low interest rates are what make the prices of certain asset classes rise and become very volatile? Are low rates essentially calling for windfall gains to owners of these assets as well as continuous, catastrophic bubbles?

Firstly, the value of these resources and companies only rise because of their monopoly nature or otherwise inelastic supply. Essentially, the fewer private monopolies we have in an economy, the better. (See paradox 13) Arguing that we should keep the costs of capital and hence returns on other investments high in order to prevent the value of monopolies and privileges from bubbling up makes about as much sense as arguing that we need to pay mafia bosses a generous public pension (to rob people via taxpayers) in order to prevent them from robbing people directly at gun point.

The biggest problem is actually with real estate. The real estate market is where low interest rates currently cause the most inefficient resource use and the greatest economic injustice. For an investor it is often worth owning a piece of real estate and keeping it unoccupied, simply as "a store of value". The rise in its market price offsets a lot of the costs of capital.

Large real estate investors and developers might actually get a better return for their investment by keeping some apartments or offices empty and some lots undeveloped: Restricting supply raises rents on the occupied apartments more than the vacancies reduce revenues. However, keeping prime real estate vacant or in suboptimal use has a negative externality effect on the development of the whole urban economy, as will be explained in more detail under paradox 12.

Falling interest rates alone would cause massive windfall gains to current owners of well-located real estate and make both the real estate investment market and the accommodation market even less efficient than they are now.

And this is where we find two big dilemmas that solve each other!

- On the one hand, it would always have been a good idea to tax land value in order to (a) keep real estate in more productive use and to (b) raise government revenue that does not hamper economic activity (i.e. cause *deadweight losses*) the same way that taxing income and consumption does. (See paradoxes 11 and 12) But adopting such a tax *suddenly* would make real estate market prices collapse, causing unjust losses to people who have most recently entered the market (e.g. first-time homebuyers).
- On the other hand, we would need to lower real interest rates negative to allow keeping the macroeconomy in balance without having to indebt other nations (see paradox 16) or increase public sector debt (fiscal stimulus, see paradox 6). But removing the lower bound on rates would make our real estate bubbles escalate to unprecedented levels.

We can avoid unjust wealth transfers in the real estate market by doing both "fixes" at the same time:

1. removing the lower bound on interest rates, by e.g. raising the target inflation rate, and
2. raising land value taxation (LVT) about as many percentage points as the long-term real interest rate is expected to fall.

In the valuation formula for land, the land value tax (t) acts as an additional profit requirement (in addition to the owner's own cost of capital) and hence, theoretically, compensates directly for any fall in expected long-term interest rates:

$$V = \frac{P_0}{r - dP + t},$$

It might be difficult to estimate the exact LVT rate that would compensate for the monetary policy change. It is possible that the jolt in investment triggered by the expectation of lower real rates increases demand so much that rates actually have to be *raised* to prevent inflation from accelerating beyond the target. On the other hand, the increased expectations of growth can also raise expected future rents. There are many factors at play.

One fair solution might be to raise LVT significantly more than would be needed and then compensate e.g. 75-90 % of the resulting fall in land values to real estate owners. This would essentially mean "forced appropriation" of a part of the location value of all real estate by the state.

Forced appropriation?! Now that might sound almost evil at first. An anarcho-capitalist or other property rights fundamentalist might call it a crime against humanity. But before you jump on the train with that guy, let's try to properly understand what it is that one actually owns when one owns *location*. (See paradoxes 10 and 11)

Exclusive ownership of physical goods that can be produced with labor can easily be justified. The fact that people expect they can keep what they produce and decide what to trade them for encourages people to produce things. Institutions that reliably protect ownership rights are a fundamental element in allowing national economies to grow and prosper.

However, location is not a physical asset produced with labor. Actually, land in this sense of location is not even a natural resource in the same way that minerals or game and fish populations are. It would be more descriptive to categorize it as a *privilege*. We'll return to this under paradox 11.

"The rent of the land, therefore, considered as the price paid for the use of the land, is naturally a monopoly price. It is not at all proportioned to what the landlord may have laid out upon the improvement of the land, or to what he can afford to take; but to what the farmer can afford to give." – Adam Smith (1776, p. 205)

10. An Increase in Wealth Does Not Necessarily Raise Living Standards

"Capital and wealth are very different ideas. Economists, when we used our old production function (output is a function of capital and labor) had in mind physical capital: machines – things that would increase the productivity of labor. But when we talk about wealth, we include not only those machines, but we also include land. But we also include the capitalized value of other sources of [economic] rents. What are those other sources of rents? There can be monopoly rents. There can be exploitation rents. There can be intellectual property rents." – Joseph Stiglitz[139]

Living standards and wealth are connected

When Adam Smith was talking about "the wealth of nations", he was actually mostly talking about total "welfare", i.e., the *living standards* of the nation's people. At least the book starts with describing the determinants of the total real income in the economy – how much the economy can produce.[140]

But *how much goods and services an economy produces* (or can produce) annually is a very different thing than the *net market value of assets* owned by the members of the economy, which is what people usually mean by "wealth" nowadays. What then determines the total amount of wealth in the world?

As explained under paradox 6, net wealth does not grow by people saving up more money. Earned money is always an expense or a real investment of someone else. Net wealth can grow either as:

1. real investments exceeding the depreciation of existing investments, or
2. a rise in the market value of existing assets.

The availability of real investment opportunities (1) is determined by

a. expected future consumption,

b. existing production capacity,
c. available technologies, and
d. the costs of capital.

Essentially, the proportion between producible capital assets and total production is determined by the capital intensity of the most profitable production technologies available in each industry. If the costs of capital are lower, this of course makes it more profitable to invest in relatively more capital-intensive technologies - even if they didn't increase labor productivity that much. (See paradox 5)

Producible assets and limited assets behave very differently

If a kind of asset can be produced directly with labor, the market value of such assets is unlikely to remain much above its production costs very long. If the market value rises for one reason or another (e.g. increased demand for the end products or falling capital costs), increased production will soon increase supply, until the profits that asset generates fall enough to lower its market value close to its production costs.

So, the market value of existing assets can rise permanently only if the asset cannot be produced directly with labor or it is otherwise limited in supply. These kinds of assets include:

- natural resources,
- privileges, including land, (see paradox 11) and
- the market value of company shares.

As long as the competition between companies works fairly, this competition will also bring the average profits generated by companies down to the industry's costs of capital. Adam Smith also made this observation:

> "The establishment of any new manufacture, of any new branch of commerce or of any new practice in agriculture, is always a speculation, from which the projector promises himself extraordinary profits. These profits sometimes are very great..." ... "If the project succeeds, they are commonly at first very high. When the trade or practice becomes thoroughly established and well known, the competition reduces them to the level of other trades."[141]

Of course, competition is never as perfect as many theories like to assume. If the company has achieved a sustainable competitive advantage or a monopoly position, its market value can rise with the revenues it generates as well as with a fall in expected interest rates. (Such a monopoly isn't always a bad thing, as will be explained under paradox 13.)

Higher capitalization of economic rents does not increase welfare

Real investments that raise capital intensity and productivity[142] usually increase total welfare: They allow us to produce more with less. (See paradox 2)

However, a rise in the value of land, patents, other privileges, or shares of monopoly companies do not make mankind any "richer", as in "better off" in real terms. Yes, the market value of net assets is higher, but overall real income in the economy (i.e., living standards) has not risen. The market value of these monopoly resources and privileges merely represents the share of that total income going to the owners of those privileges, natural resources, monopolies, or other sources of *economic rents* (will be explained under paradox 11).

If politicians wanted to *maximize wealth* in a national economy, a "winning strategy" would be to monopolize the sale of antiretroviral drugs in the economy, let people buy shares in that monopoly company, and then give all citizens an HIV infection. This would make the antiretroviral monopoly a very valuable asset indeed – especially at low interest rates. People would be willing to pay anything they could afford in order to get their antiretroviral drugs.

If we *further* wanted to increase "wealth", the government could start subsidizing antiretroviral treatments for those with low incomes. This would allow them as well to afford to pay higher prices for their antiretrovirals, effectively circulating this public support into the pockets of shareholders of the monopolist company.

Actually, there are two almost analogous situations in the real world:

- The real estate market in the Helsinki metropolitan region, where housing supply is restricted with zoning and an implicit construction cartel,[143] and low-income inhabitants are paid accommodation support to be able to afford rents

– which further raises rents. All increases in "rent paying power" are capitalized into the market value of real estate. (See paradox 12)

- Medical services in Finland, where the wages of medical doctors are kept high by restricting the numbers of starting places for medical degrees. Similarly, medical services are highly publicly subsidized so that even poor people can afford the services despite their high production costs.

Housing and medical services are vital needs, where price elasticity of demand is low, especially downwards. It can be further lowered with public subsidies that prevent a lack of purchasing power from becoming an obstacle to buying the service. By restricting supply in such markets, it is easy to raise prices (including wages) very high. Paradox 11 will shed more light on this phenomenon.

"There is in reality no conflict between labor and capital; the true conflict is between labor and monopoly... Abolish the monopoly that forbids men to employ themselves and capital could not possibly oppress labor... [R]emove the cause of that injustice which deprives the laborer of the capital his toil creates and the sharp distinction between capitalist and laborer would, in fact, cease to exist." – Henry George (1949, p. 277)

11. The Landlord Charges You for Public Services – and for Your Job

"'Go, get yourself a piece of ground, and hold possession.' And if, under such circumstances, you take his advice, you need do nothing more. You may sit down and smoke your pipe; you may lie around like the lazzaroni of Naples or the leperos of Mexico; you may go up in a balloon or down a hole in the ground; and without doing one stroke of work, without adding one iota of wealth to the community, in ten years you will be rich! In the new city you may have a luxurious mansion, but among its public buildings will be an almshouse." – Henry George[144]

Would you like someone else charging for your services?

Imagine the following scenarios.

Scenario 1: The government sets up a free public service, such as a school, a park, or a road. An "entrepreneur" realizes that this service costs to users far less than what they would actually be willing to pay for it and also far less than what its real production costs are to the government. So he builds a tollgate in front of the school or on the ramp to the road and starts charging people for their access to these public services.

Any improvements in this service or people's ability to pay for it essentially result in this private capitalist getting to charge higher tolls. The tollgate becomes a very valuable asset, and he is able to sell the gate or shares in the tollgate company on the financial market. With the rise in toll fees, the market value of the tollgate business also rises.

Scenario 2: A city grows prosperous with an increasing division of labor and growing productivity. (See paradox 2) Another "entrepreneur" comes up with a marvelous idea: He starts leasing out a limited number of license badges that allow people to participate in the economy of the city. Anyone willing to work there and to use the services provided by the private sector will have to pay him annually for a badge they must wear. Some badges allow better access to more central parts in the city. He hires guards that throw out anyone who isn't wearing the right kind of badge.

As the city continues to grow and its economy develops, the sums that people are willing and able to pay for participating in its economy grow, too. The annual fees for the badges rise – and so does the value of the badge leasing business. The entrepreneur starts selling some badges permanently to investors who then own the right to collect the license fees for those leasing the badges from them. Some people start taking out large bank loans to be able to buy a badge permanently for themselves in order to avoid having to pay fees to private investors. Instead, they end up repaying the debt with interest for decades. In exchange, they get in on a small share of the expected rising market value of the badges.

Now, you wouldn't really consider either of these businesses to be a very honorable trade. Neither entrepreneur is actually producing anything valuable or contributing in anyway to the city's overall living standards. In fact, they are doing harm: They are imposing an additional cost on others, and likely also hampering total production. Nevertheless, they have managed to create very valuable investment assets that did not exist before: the gate and the badges. They certainly have increased net *wealth*! (See paradox 10)

Privileges are valuable and develop a market price

The fees that the owners of such *gatekeeper assets* are able to collect are not derived from producing and selling anything of value. They collect the fees by restricting others' freedom. The gate and the guards requiring licenses restrict others' access to certain services and markets.

This is what is meant by *rent seeking* in economics: attempting to capture income from others without producing anything of value for them.[145] In its broader meaning, *economic rent* is the price of a product or service exceeding the cost of producing that product or service.[146]

In the real world, we actually have many situations very similar to the two rent-seeking businesses described above.

In the absence of competition from high-speed mobile networks, a broadband operator with a local monopoly (e.g. Comcast, Time Warner Cable, and Verizon in the U.S.[147]) is able to charge people for their access to practically *all the services provided on the internet* – public and private. The more people appreciate online services and the more their real incomes grow, the more the broadband monopolist is able to charge for this access. How much the broadband service actually costs to provide and sustain makes no difference to how high fees the company is able to collect.

Under fair price competition, the price would be limited to the next best competitor's costs of providing the service, including the costs of capital (see paradox 5). The ability to collect economic rent would disappear. The *Law of Rent* states that the amount that people are willing to pay for a privilege, opportunity, or limited resource is determined by the difference between how much can be produced using the asset compared to using the best available rent-free *alternative*.[148] However, fair competition is at least inefficient if not impossible in *natural monopoly industries* like broadband and other fixed infrastructure.

Privately owned bridges are another kind of real world gatekeeper asset. For example, the privately owned Ambassador Bridge between Detroit (US) and Windsor (Canada) crossing the Detroit River is such a very profitable rent extraction tool. Again, the tolls the bridge owner can charge depend on the next best alternative: currently a lower-capacity tunnel and other bridges further along the river. No wonder the owner has fought hard against the construction of a new publicly owned bridge nearby.[149]

This is no isolated incidence of controlling critical infrastructure for notable financial gain. It is quite common for economic writers to refer to the "robber barons"[150] of the Middle Ages: landowners who collected exorbitant tolls for the use of roads and bridges on their lands.[151]

As an example of limited operating licenses in the real world, many American cities have in place a system of a limited number of *taxi medallions*. To be allowed to operate a taxicab in the city, one has to own a taxi medallion or lease one. As a result, any increase in the demand for taxi services – i.e., an increase in what people are willing to pay for them – and any increase in the productivity of the taxi business is essentially capitalized into the value of these taxi medallions. In New York, Boston, and Chicago, medallions have traded for hundreds of thousands of dollars per piece.[152]

The value of these taxi medallions is purely based on the economic rent of the privilege that they grant - the privilege of getting to participate in the valuable taxi service market. Hence, their value can be significantly affected by expectations of serious competition from "ride sharing services" like Uber and Lyft.[153] Such limitations cannot be overcome with mere technological or service model innovation. Uber and Lyft have also had to find the necessary legal loopholes, and have to invest heavily in maintaining them.[154]

Location means access

But even without such artificial privileges, a market economy has a naturally limited asset that

- restricts access to both public services and whole markets,
- allows private individuals to charge for this access, and
- can currently be owned exclusively.

That asset is location.

Deceivingly, this privilege of location ownership is tightly bound to the buildings that sit in that location. But essentially the mechanics of the real estate market are analogous to those of taxi medallions: Lots and the construction permits associated with them act as a limited license to provide accommodation services as well as facilities for commerce and business in the region.

Owning location is owning the right to *be* somewhere and to decide who else gets to be and do things there - much like the badges in the fictive Scenario 2. As Henry George put it:

> "The equal right of all men to the use of land is as clear as their equal right to breathe the air - it is a right proclaimed by the fact of their existence. For we cannot suppose that some men have a right to be in this world, and others no right."[155]

Though a large part of cities is composed of public spaces, the value of such public spaces is largely capitalized into the value of the apartments that grant access to the squares and parks and to which the public streets grant access.

One difference to taxi medallions is that locations are much more unique. They have a local monopoly. Taxi medallions are at least *fungible* within the whole city: One medallion substitutes perfectly for another. But just like taxi medallions, additional centrally located lots or construction permits cannot be produced with labor. There is no price elasticity of supply. (See paradox 1) Like the taxi market in Boston, the land market in every city is an *entry monopoly*.[156] You can only enter the market by buying land from an existing player.

A second difference is that taxis compete with other forms of transport: the subway, buses, cycling, driving one's own car etc. No one is forced to ride a cab. Cabs have *substitutes*.

Land is far less substitutable. For accommodation, the alternative is living further out in the suburbs and commuting a longer trip. With hostels, hotels, and services like AirBnB one is still paying rent for the location.

For access to work, remote working possibilities provide a partial substitute in some cases, reducing the costs of living further from economic centers. However, no matter how far virtual reality technologies evolve, the internet can never fully substitute for all the services and social contacts that living in a central location provides. The sticky social and symbolic value of physical presence can be seen for example in conferences, fairs, live music concerts, block parties, and all kinds of festivals, which are rather on the rise in frequency, size, and popularity. People even gather in huge crowds to play and follow eSports, online computer games, in the same venue - an activity designed to be done online![157]

Location value depends partly on geographic factors, such as the proximity of rivers, lakes, forests, or other desirable views. However, in urban environments, location value is mostly determined by:

- the public services available locally,
- the vibrancy of the local economy (and culture), including the private services offered, and
- *reachability* or *accessibility*, i.e., connections, such as roads and public transport, to other centers.[158]

Essentially landlords are charging their tenants for public services and infrastructure! The analogy to the private tollgate at the public school also applies. Parks, well-reputed schools, and train stations all raise the value of local real estate.

What has the landlord contributed towards these services? Nothing.

Of course, a large real estate developer might be able to stimulate private sector services and business in an area. Location value is strongly dependent on the use of *surrounding* land, and hence real estate development has *externality effects* on the value of surrounding land. (Externalities were introduced more generally under paradox 4.) Positive externalities of real estate development (also sometimes called *spillover effects*) justify leaving a small part of land value to the owner of a piece of real estate.

However, for the most part, the location value of a piece of real estate is not created by its owner – unless you build Disney Land in the middle of nowhere. In general, having a large developer monopolize a whole part of town is not a desirable situation either.

Land value isn't created by owners – even collectively

Some (libertarian) critics of LVT argue that land value is created by *owners* of surrounding real estate, and that it would hence be unfair to "punish" property owners collectively for this value creation.[159] However, the claim that landowners create land value is not true. Even if some of those people that play a big role in raising land value would own a lot of land (pun intended), land*ownership* isn't the way that they raised it!

Firstly, as said, public infrastructure investments and other public services play a big role.

Secondly, private services are not all produced by landowners. Many service businesses that raise the value of residential buildings operate on leased premises. The positive externalities of the services provided are in no proportion to the entrepreneur's financial position in real estate.

One example is San Francisco. For the most part, San Francisco is made desirable by the Silicon Valley business ecosystem that generates highly innovative and scalable technology and online service companies and attracts lots of talented and hard-working people as well as wealthy investors. The purchasing power that this cluster brings has further fed the emergence of a broad range of consumer services including restaurants and cafés. The presence of presumably intelligent entrepreneurs and their families also makes the city a highly desirable place for people to raise their children, which further increases the area's competitiveness over businesses.[160] The prestigious Stanford University – a degree from which grants access to many high-paying labor markets – is another attractive feature, making people ready to pay for studying in the city.

None of these factors are the makings of landowners or real estate developers.

Of course, executives of successful companies are likely to become homeowners, as they have sufficient equity and income to get onto "the property ladder". The university and some companies also own large amounts of real estate. But even they haven't generated these positive externalities on land value *with* their land*ownership* – or even their real estate development skills. Quite the contrary, land values in San Francisco are partly as high as they are precisely because zoning does not allow very much improvements and innovation in real estate development.[161] [162] This makes access to this desirable and productive community a limited resource for which landowners can charge high rents.

The land value is the making of the community of people living and doing business in an area – not the ones who happen to own the real estate. Nevertheless, a large part of the economic benefits of the high productivity and innovativeness of the area has been reaped by local landlords, with no special effort or innovation of their own.

Suboptimal allocation of (systemic) risks

Let's set aside any moral considerations over whether anyone has actually *earned* land value. It is easy to counter any moralistic arguments (such as the one by Henry George cited earlier[163]) with an opposing moral rule or "natural law". Not everyone buys into the idea that ownership should be based on production effort (labor) or otherwise having "earned" the property.

For example *natural rights libertarians* (a.k.a. deontological libertarians) claim a "natural right" to exclusive ownership of anything physical that one has first "homesteaded", i.e., taken into use,[164] or acquired through trade. As Ludwig von Mises, a more consequentialist libertarian, writes:

> "It is useless to stand upon an alleged 'natural' right of individuals to own property if other people assert that the foremost 'natural' right is that of income equality. Such disputes can never be settled." (Mises 1963, p. 284-285)

Someone might argue that, even if something weren't produced by anyone, private ownership still allocates resources more efficiently and incentivizes people to take care of their property.

So, let's look at land ownership from such a practical, incentives point of view.

The function of the financial market is to assess which investments are worth their risks and to allocate risks to those parties who are in the best position to carry them. (See paradoxes 5 and 19) For example, a consumer electronics company operating in many countries is focused on being good at its core business: developing and selling consumer electronics products. It has little control over international currency exchange rates, but is nevertheless exposed to risks in exchange rate fluctuations. Similarly, it is also subject to temporary fluctuations in the market values of commodities it is using, but has little control over these either. Using *financial derivatives*, such as *futures*, *options*, and *swaps*, the company can *hedge*[165] its position against such risks and let someone else carry them or hedge them against other risks.

Location value is not in the hands of any single property developer, real estate investor, or homeowner. Instead, it is very sensitive to changes in zoning as well as public investments in infrastructure and other services. Also, general economic trends, expected future interest rates, (see paradox 9) and large structural changes in the economy have an impact on location value.

For example, large car manufacturers shutting down their operations in Detroit annihilated much of the value of real estate in the city. In no way was this structural change in the hands of homeowners or property developers.[166] The same has happened in many Finnish towns built around paper mills,[167] as well as Salo when Nokia first heavily downsized[168] and then (as part of Microsoft) ceased its operations there.[169]

It is highly suboptimal that homeowners or real estate investors should carry such massive systemic risks. It would make a lot of sense that a majority of location value is "owned" by the state or municipality, while the buildings and developments remain the untaxed property of investment companies and other private parties.

Private control, but not without a cost

Unfortunately, the laws of physics and the structure of space-time make it hard to eliminate the existence of this location privilege. As said, the trouble is that buildings are pretty much inseparably attached to the ground on which they stand. That's what makes real estate real estate.[170]

That's why the municipality leasing land to private constructors and homeowners would not solve the problem. With long-term lease contracts, any rise in the location value of the real estate would still flow to the owner of the buildings. It is pretty difficult to make the lease fees follow the true market value of the location. A private investor owning a lot could strip any building on it of its financial value by raising the land lease fee to match what anyone is willing to pay for using the building. (On the other hand, a city composed of trailer parks is hardly structurally efficient or very cozy either.)

The solution is that all real estate is owned privately, but its land value is taxed, highly. For this to be fair and non-distortionary, the tax rates have to be predictable and the taxable value would have to follow market values as closely as possible. The valuation should preferably be conducted so that the owner always has the chance to sell the piece of real estate at the taxed price within a relatively short period of time.

Land value taxation (LVT) would both:

- encourage keeping real estate in the most valuable use available and the best possible condition, and
- collect the value created collectively by the local economy and by public services for reinvestment into those communities and the costs of sustaining the services.

Untaxed land rents as 'private taxation'

Whether LVT even deserves to be called "taxation" is subject to debate. Income taxes take from people a part of what they have produced or earned. This deserves to be pejoratively called "stealing", as many libertarians do call it.[171] Land taxation merely collects what could arguably be considered to belong to the public sector or the whole community to begin with.

We could instead consider the private ownership of location to be *a private taxation right*! Taxing land is essentially *reducing* this private taxation.

To take this further, all *economic rents* could be considered private taxation rights. Overall, sources of economic rent include:

- natural resources (which no one has produced),
- privileges, such as land, patents, taxi medallions, limited academic degrees, other operating licenses etc. and, (see Image 2)
- monopoly positions or other ways of limiting others' choices.

LVT leaves a smaller portion of private economic rent to the owners of the location by collecting a part of it into public use.

"The rent of the land, therefore, considered as the price paid for the use of the land, is naturally a monopoly price. It is not at all proportioned to what the landlord may have laid out upon the improvement of the land, or to what he can afford to take; but to what the farmer can afford to give." – Adam Smith (1776, p. 205)

12. Taxing Land Can Lower Accommodation Costs

"Urban sprawl, for example, is the symptom of a wasteful use of space - of land. But land is a precious commodity, particularly in desired locations. Therefore it's essential to give land users and real-estate developers proper economic incentives to encourage them to use land more efficiently." - Martin Adams[172]

Land taxes cannot be transferred to rents

It is intuitively appealing to expect the taxation of land value to raise living expenses and the costs of using central locations. However, we'll suggest that taxing land can actually *lower* rents, in the everyday meaning of accommodation costs. How?

Firstly, unlike many commentators suggest, landlords cannot pass on the land value tax to lessees by raising rents. When the supplied amount of something is fixed, the market price is determined quite directly by demand, i.e., people's *willingness* and *ability to pay* for it. What people are willing and able to pay for the use of a location isn't raised by a tax imposed on owning the location.

As Henry George put it:

> "Nor, if a tax be levied on that rent or value, this in no wise adds to the willingness of anyone to pay more for the land than before; nor does it in any way add to the ability of the owner to demand more. To suppose, in fact, that such a tax could be thrown by landowners upon tenants is to suppose that the owners of land do not now get for their land all it will bring; is to suppose that, whenever they want to, they can put up prices as they please.
>
> This is, of course, absurd. There could be no limit whatever to prices did the fixing of them rest entirely with the seller."[173]

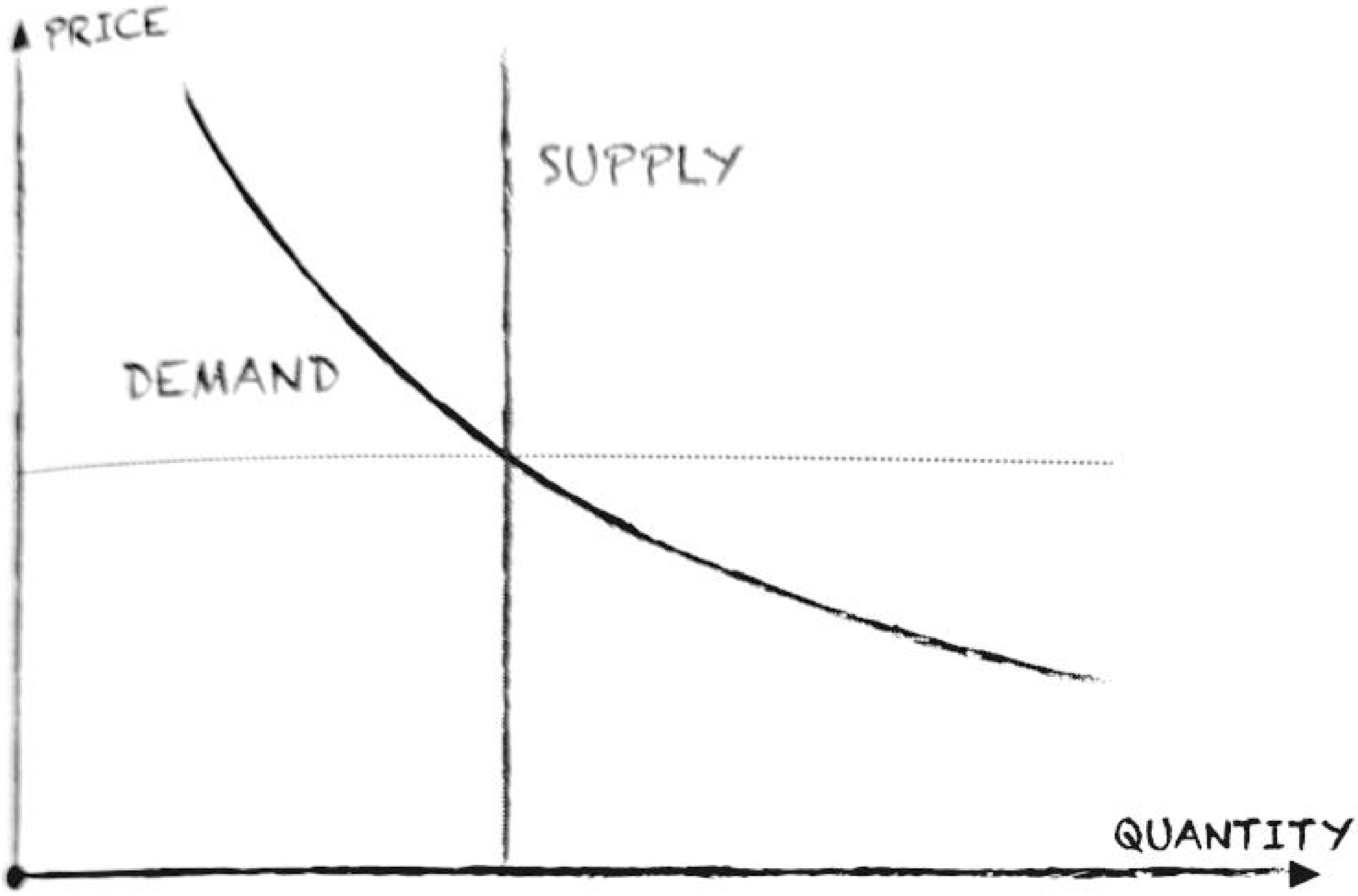

Image 8: When supply is inelastic, demand determines the market price

However, this was already acknowledged by Adam Smith:

> "Ground-rents are a still more proper subject of taxation than the rent of houses. A tax upon ground-rents would not raise the rents of houses. It would fall altogether upon the owner of the ground-rent, who acts always as a monopolist, and exacts the greatest rent which can be got for the use of his ground." (Adam Smith 1776, p. 692)

Speculative hoarding restricts supply further

Instead, land value taxation can increase supply! Didn't we just say that the amount of lots and construction permits is limited and price-inelastic? Yes, but the amount of apartments actually constructed and leased out on the market is not.

Currently, a large portion of apartments are kept empty or underutilized:

- Owners of apartments are not in a hurry to find lessees, as the costs of capital are almost covered by the expected rise in land value. On the other hand, eviction regulations and other restrictions that are meant to protect the rights of incumbent lessees also increase the risks involved in letting out an apartment.

- Wealthy people purchase large apartments for themselves simply because they are good investments. They would likely not lease such a big apartment for themselves, as many of them work long days and don't spend much time at home. Though a large apartment would make no sense as a consumption cost, it makes a lot of sense for the individual as an investment. This is also a form of wasteful use of prime real estate.
- Many foreign investors acquire apartments in the centers of large cities (e.g. New York, London, and San Francisco) purely as investments to hedge against political and cyclical risks, as *pied-à-terres* (i.e., as temporary or second lodgings[174]) for very occasional use, or as mere status symbols. Many high-rise buildings with luxury apartments hardly have any lights on in the evenings.[175]

If there were a significant cost to owning real estate in desirable locations, it would become very unprofitable to keep these locations in inefficient use. Under high land value taxation, it would only be worth owning a piece of real estate if one kept it in the most valuable use available. If one didn't, other investors would make offers for real estate in the area according to the revenues he could expect with that alternative, more valuable use. As the taxable location value would be determined according to realized trades and binding purchase offers in the area,[176] the current owner would have to pay taxes according to this potential revenue while still only receiving the lower revenue of the current suboptimal use.

He would then have the alternative of shifting the real estate to the more valuable use and making the available profitable renovations or other real investments himself or selling that piece of real estate to the one making the offer. Notice, that no one can be put in a worse position by such offers: Selling at the higher offered price allows the current owner to make a sales profit for the part of land value that the LVT rate leaves for the private real estate owner. Someone making a higher offer for your land is hence still more an opportunity than a threat.

A typical example of inefficient land use is maintaining high vacancy rates of apartments. Currently, with low costs of holding valuable locations and the high risks involved in leasing the apartment out, high vacancy rates are encouraged. Instead, under high land value taxation, the ability to quickly find new tenants to keep apartments in use becomes a significant source of competitive advantage for real estate investors in the apartment leasing business.

There would finally be proper competition in the rental market! This would likely not only lower rents, but encourage lease providers and real estate developers to focus on the quality of rental apartments as well.

In some places (such as Helsinki) there is currently very little competition with quality or price between real estate developers, as the acquisition of lots from the municipality essentially predetermines their long-term market shares.[177]

The land value tax is also a Pigovian harms tax

As introduced under paradox 11, all land use has *externalities* on the value of surrounding land. Infrastructure investments have significant positive effects on land values. Also, the establishment of private services increases the value of surrounding residential buildings. As an example of negative externalities, building a pig farm next to a five-star hotel can cause a significant drop in that hotel's ratings. A more common case is a new, tall building blocking the views from the windows of a existing buildings.

This is what makes *central city planning* valuable and even necessary. With no guidelines making the actions of other investors predictable, it would be a massive *coordination problem* trying to achieve an efficient city structure. Investing in real estate development is very risky if one has no idea what will be built around one's apartment building, store, office building, or factory, or what the transport connections and infrastructure of the area will have in the future.

An example of the value of predictability is how rail connections raise land values and consolidate city structures far more effectively than bus connections do. The *sunk costs*[178] involved in the rail investment convince real estate investors that the area is likely to remain well connected in the future. It is far cheaper and faster for the municipality to change bus routes. Hence bus routes do not guarantee future accessibility as reliably as rails do.

However, there is another negative externality involved in mere exclusive land ownership, regardless of use. As central locations are limited, owning a central piece of real estate prevents someone else from owning a central location. This does not apply to producible assets: Owning a sports car or yacht does not prevent anyone else from owning one.

As said, urbanization and the proximity of people is a very important factor in the development of economies. (See paradox 2) Owning a well-located apartment and keeping it empty or keeping a lot undeveloped necessarily reduces inhabitant density – without improving the city's "atmosphere" or increasing social interaction, as parks and other public spaces do. Not only is it wasting a valuable resource, it is actually hampering economic progress!

Suppose, hypothetically, that a rich investor came in and bought up a fourth of the apartments in the center of a city. By keeping those apartments empty, he could essentially reduce the population density by 25 %. This would significantly affect the amount and kinds of service businesses that are likely to evolve in the area. It would also feed *urban sprawl* and increase the average distances people have to travel to get to places.

An investor cannot do damage in a similar way to e.g. a production industry by buying up factories and keeping them unused. Nor can you prevent people from obtaining cars by hoarding them. Additional cars can be produced. Competitors can build additional factories and take over his share of the market. The long-term price elasticity of supply is practically infinite.

As introduced under paradox 4, Pigovian taxes can be used to embed negative externality costs into the prices of goods. Land value taxation can also be considered a Pigovian harms tax on this negative externality of preventing others from owning and using that unique location for valuable purposes.

"Woe to you who add house to house and join field to field till no space is left and you live alone in the land." – The Bible, Isaiah 5:8.

13. Pro-Business Is Not Pro-Market

"But the rate of profit does not, like rent and wages, rise with the prosperity, and fall with the declension of the society. On the contrary, it is naturally low in rich, and high in poor countries, and it is always highest in the countries which are going fastest to ruin." – Adam Smith[179]

Competition: optionality vs. zero-sum races

Competition.

A word with strong emotional charges both ways. To unravel the causes of these charges, we first have to acknowledge that there are many different *kinds* of competition.

The kind of competition that often first comes to mind is the type of a sprint race or some other sports tournament. In this kind of competition, there are necessarily "winners" and "losers". One achieving a better position will leave others in a worse position. This kind of competition is a kind of *zero-sum game*. The competition with academic grades over a predetermined, limited number of student places at universities is a similar zero-sum competition.

War is a kind of *negative-sum* competition, as are most other kinds of *rent seeking*. (See paradox 11). Total losses (costs) exceed total gains by the winners.

However, in the context of a market economy, "competition" essentially means *the availability of alternatives*. "Putting something up for competition" means allowing different parties to provide alternatives. Competition is simply the opposite of *monopoly*. A monopoly is a situation where there is only one provider of a service or one available solution for meeting a need.[180]

Such optionality is ultimately the main mechanism that prevents extortion in a market economy. As Henry George put it:

> "There is in reality no conflict between labor and capital; the true conflict is between labor and monopoly... Abolish the monopoly that forbids men to employ themselves and capital could not possibly oppress labor..."[181]

In the competition of a market economy, everyone can win in her own way. This is because the market economy is not a game where everyone is striving to maximize the same one-axis score. People have different preferences over kinds of consumption as well as kinds of work and risk-taking. Optimally, people would end up doing the kinds of things they relatively enjoy the most (or hate the least) and consuming the goods that they consider most worth making.

As information is never perfect and as people's preferences change, a market economy of course never achieves such a state of perfection. But with good mobility between industries and a working interest rate mechanism (see paradox 6), markets can *tend towards* this kind of situation, as people choose alternatives that they consider to be relatively better for themselves. (See paradox 1)

Optionality makes profit-seeking beneficial

This applies partly to companies as well. Many companies specialize in serving a niche market with very specific needs. This is also a kind of optionality.

However, competition between companies is partly also a negative-sum game – between the companies! Companies *should* be trying to capture each others' market shares and to drive each other into bankruptcy or otherwise out of business.

It is this competition that turns the *profit seeking* of private companies into benefits for employees and consumers – instead of it being damaging or extortionate *rent seeking*. (See paradox 11) When people have choices, making bigger profits usually requires producing more value for customers and employees: making better products and services with less labor – or by making the labor more enjoyable.

It is a fairly common perception that an economy is doing well when its business life is doing well: when companies are growing and making big profits and when there are few bankruptcies. The *mercantilist* focus on national competitiveness (the unsustainability of which we'll be discussing under paradox 16) puts the focus especially on export industries flourishing. Finland is still grieving its Nokia, and many blueprints for the country's future long after "the next Nokia".[182]

However, this is a *fallacy of composition* – assuming that what is true for the parts of a whole must be true for the whole as well. (Similarly, it is a fallacy of composition to conclude that, because companies aim to maximize profits and to grow, this would be the *purpose* of a market economy composed of such companies – see paradox 14.)

Actually, large profits are a sign of an *unhealthy market*. In an efficient market, competition prevents individual companies from reaping high profits in the long-term. Improvements in productivity are turned into higher purchasing power for consumers and employees. (See paradox 3) As Nassim Taleb writes:

> "The problem is graver than you think: People go to business school to learn how to do well while ensuring their survival – but what the economy, as a collective, wants them to do to *not* survive, rather to take a lot, a lot of imprudent risks themselves and be blinded by the odds." (Taleb 2012, p. 75)

It will always be in a company's interests to reduce competition, if it can do so. Korean-born American economist Ha-Joon Chang (who is a little biased towards economic planning) puts it:

> "[D]ecisions that are good for individual firms may not be good for the national economy as a whole." … "What is good for General Motors isn't necessarily good for the United States."[183]

Already Adam Smith knew that it was not wise to give merchants oo much control over the rules of trade:

> "The interest of the dealers, however, in any particular branch of trade or manufactures, is always in some respects different from, and even opposite to, that of the public. To widen the market and to narrow the competition, is always the interest of the dealers. To widen the market may frequently be agreeable enough to the interest of the public; but to narrow the competition must always be against it, and can serve only to enable the dealers, by raising their profits above what they naturally would be, to levy, for their own benefit, an absurd tax upon the rest of their fellow-citizens. The proposal of any new law or regulation of commerce which comes from this order, ought always to be listened to with great precaution, and ought never to be adopted till after having been long and carefully examined, not only with the most scrupulous, but

with the most suspicious attention. It comes from an order of men, whose interest is never exactly the same with that of the public, who have generally an interest to deceive and even to oppress the public, and who accordingly have, upon many occasions, both deceived and oppressed it."[184]

Decentralization and alternative organizational forms allow evolution

The *decentralization* caused by competition also makes the market economy robust or even *antifragile:* Shocks and uncertainty can be "good for it" in the long run. They allow it to evolve. (See paradox 15)

Essentially, a market *is* an ecosystem. Therefore, a natural ecosystem provides an enlightening analogy in terms of both its antifragile evolutionary nature and the afore-mentioned fallacies of composition:

- Diversity between and within species is what allows them to evolve and makes the ecosystem adaptable to changes in the environment.
- Even if individual lions only strived to eat and mate - to survive and reproduce - this does not mean that maximizing the ability of lions to eat and mate would be the *purpose* or *function* of the whole savannah ecosystem.

Companies are essentially competing organizational forms in a harsh, constant game of "survival of the fittest". The beauty of this market system is in how it allows the evolution and adaptability of structures and processes without any individual *people* having to starve to death in the process - or could allow if people always had alternatives. (See paradox 15)

A monopoly or a monopoly

Even in the economic sense, there is a lot of room in the definitions of both "competition" and "monopoly". In mainstream economic theories, "monopoly" is sometimes defined as any situation where an individual company does not face *a perfectly elastic demand-curve.*[185] In practice, this would mean that only markets of perfectly fungible, non-differentiable commodities would be free of monopoly. A market situation where possibilities of product differentiation result in imperfect substitutability of goods for one another is also called *monopolistic competition*.[186]

Peter Thiel takes this very broad definition of monopoly and a very tight, zero-or-negative-sum definition of "competition"[187] when he writes that "capitalism and competition are opposites".

By this he essentially means that companies should avoid *direct price competition* in existing markets and focus on being superior in providing something specific. This of course, makes sense for an individual company. As said, to some extent, this kind of specialization is also beneficial for consumers and employees. Thiel clarifies:

> "To an economist, every monopoly looks the same, whether it deviously eliminates rivals, secures a license from the state, or innovates its way to the top. In this book, we're not interested in illegal bullies or government favorites: by 'monopoly,' we meant the kind of company that's so good at what is does that no other firm can offer a close substitute." ... "But the history of development is a history of better monopoly businesses replacing incumbents."[188]

This kind of a monopoly based on a superior product is very different to one maintained by force or otherwise restricting other people's choices. If the threat of *potential* competition remains, this prevents such a dominant player from abusing its position on the expense of consumers and employees. The monopoly company has to keep on improving its services and sustaining a healthy working environment and company culture. For example with natural monopolies like basic infrastructure (power grids, rail networks, roads etc.) the chances of a "better monopoly business" replacing the incumbents is very low.

However, Thiel is a little optimistic in his expectations of the "benevolence" of large monopolists. His argument is that a monopoly can afford to invest in long-term-oriented and risky projects in which other companies would not invest.

> "A monopoly like Google is different. Since it doesn't have to worry about competing with anyone, it has a wider latitude to care about its workers, its products, and its impacts on the world. Google's motto – 'Don't be evil' – is in part a branding

> ploy, but it's also characteristic of a kind of business that's successful enough to take ethics seriously without jeopardizing its own existence. In business, *money is either an important thing or it is everything*. Monopolists can afford to think about things other than making money; non-monopolists can't." ... "Only one thing can allow a business to transcend the daily brute struggle of survival: monopoly profits."[189]

This conclusion is a little rash - and omits some basics of finance. Shareholder expectations matter much more than monopoly profits. If shareholders require short-term profit maximization, how well a company is doing should not significantly affect what kind of investments the company is able to or allowed to make. Individual investments still have to have an expected positive net present value. (See paradox 5)

If shareholders are willing to provide sufficient financial capital, to take bigger risks, and to wait longer for returns, a company can focus on achieving long-term returns just as well without monopoly profits. (And this would be more likely with lower interest rates and hence lower costs of capital.)

It can be argued that Thiel's example company, Google, has mostly invested in new technologies that have the potential to provide vast benefits for mankind: self-driving cars, high-tech map and translation services, etc.. But compare this to e.g. the agriculture technology company Monsanto, which seems rather to be investing its monopoly rents in further limiting competition and increasing its rent-seeking opportunities.[190]

The possibility of ripping people off with private monopolies remains a significant dilemma of a market economy. There are many situations where it becomes more profitable to focus on rent seeking than on creating value for others. If there is a need for a government or state, its primary function should be in:

- preventing the formation of private monopolies and cartels(anti-trust intervention),
- preventing the imposing of negative externalities on others in the economy, (see paradox 4) and
- acting as a "common ownership vehicle" for natural monopoly industries and natural resource rents. (See paradox 11)

Monopolies are not 1s and 0s

However, determining what exactly is "*non-competitive action*" is not as simple in today's digital world as it might seem. Google's search engine might be superior, but it is also protected by large benefits of scale in indexing the web for searches.

Facebook is not dependent on legal protection for its monopoly, but it is shielded from competition by significant *network effects*: a social network's value to users depends significantly on the number of other people using it.[191] Even if other services like Google Plus were to have superior features and advertising prices, many people would still stay with Facebook because all their friends are there and that's where they get all their event invites. Moreover, people's circles of friends are highly overlapping interlinked. Getting everyone to switch over to another service at once involves a near impossible coordination problem, (which in game theory is called a Stag Hunt). Some groups of youngsters have successfully migrated their circles' communication to e.g. WhatsApp and Instagram, which makes it understandable that Facebook has paid billions to buy these competitors off the market.[192] [193] These acquisitions could definitely have been considered "non-competitive actions" by some standards.

Microsoft and Apple have managed to achieve strong *lock-in positions* with their operating systems. Apple has further created a massive network of developers and users around its AppStore and is able to reap significant monopoly rents by being this central mediator in mobile applications. A large part of Apple's profit margins, however, come from the *brand value* it has created. Amazon can be argued to have used *predatory pricing* tactics to kill competition in book trade: pricing books even below their own marginal costs in order to achieve a monopoly position.[194]

Where to draw the line? What would be a fair and predictable way to intervene? How to avoid possibilities of regulatory capture: further rent seeking by influencing the anti-trust regulators.[195] Both competiting companies and investors who have shorted a company's stock have a lot to gain in damaging its business by political means? Those are big questions.

Perhaps, it might be wise to limit monopoly intervention to vital resources and goods – such as food, shelter, and health care – as well as ones that allow "gate keeping" a whole market – such as location and internet access. (See paradox 11) Perhaps.

14. Growth Dependence Is the Biggest Obstacle to Growth

"Under existing macro-economic arrangements, growth is the only real answer to unemployment – society is hooked on growth." - Douglas Booth[196]

Growth and the dependence are two different things

The *degrowth* movement has gained a lot of popularity. It strongly criticizes the current blind pursuit of economic growth as a first priority. A major focus of this criticism is on pointing out the increasing strain that economic growth seems to impose on our planet's carrying capacity and its delicate ecosystems.

There is a lot of good reason to question economic growth as an end in itself.

Sadly the debate has been reduced to an arm wrestle between *opponents* of economic growth and *supporters* of growth. In environmentally concerned circles, the alternatives seem to be degrowth and *decoupling* environmental impacts from economic development, which would allow "green growth".

Degrowthers point to historical empirical data as evidence that decoupling would be impossible. The Jevons paradox (see paradox 4) is often cited as proof that increased resource use efficiency will only lead to an increased environmental strain unless growth is purposefully restricted.

However, while economic growth tends to have come with increased fossil fuel consumption, pollution, and biodiversity deterioration, the data also suggests that economic recessions don't reduce these environmental externalities in the same proportion.[197]

"Decouplers" (who tend to be technology optimists) don't even want to ask where the necessity of constant economic growth comes from.

The claim of this book and the Root Bug hypothesis is that the problem is not economic growth as such, but the *dependence* on economic growth. This dependence:

1. is what prevents effective decoupling – making all economic activity environmentally sustainable – and
2. is, paradoxically, also the biggest *obstacle* to desired growth!

The extreme branch of degrowthism has ended up confusing an addiction with the *object* of the addiction, and hence demonizing growth as such. It has "thrown the baby out with the bathwater". The existence of alcoholism does not make alcohol an absolutely bad thing as such. The existence of sex addictions and sexual abuse does not provide a reason to demonize human sexuality in general.

Economic growth essentially just means people producing more and better goods and services for each other. (See paradox 2) There should be no need to demonize trade, specialization, and growing labor productivity as such.

With no *dependence* on growth, there would be no obstacle:

- to setting sustainable limits on the use of natural resources,
- to penalizing companies properly for environmental externalities,
- to taxing fossil fuels out of use, and
- to rigorously protecting biodiversity and endangered habitats. (See paradox 4)

When we (1) ensure that all economic activities are environmentally sustainable and (2) get supply to meet demand on the individual level in the labor market regardless of total consumption, how much people want to produce goods and services for each other and consume them could remain a matter of personal preference. Everyone can choose how much she wants to grow her own economy.

However, currently governments need to grasp at every opportunity to stimulate growth for their economies in order to avoid unemployment and a destructive depression cycle. This includes slackening environmental regulations and even subsidizing the use of fossil fuels to keep energy affordable. Rising energy costs might raise the costs of goods and services, making people buy less of them, which could trigger a catastrophic depression or economic collapse. (See paradox 4) As Jeff Rubin of Bloomberg News notes:

> "Over the last four decades, each time oil prices have spiked, the global economy has entered a recession."[198]

Scapegoats for growth dependence: debt-money, company incentives, and tax revenues

But where does this growth dependence come from?

Critics of capitalism have a number of pet theories.

Some blame the need of profit-seeking companies to strive for growth. But this is a *fallacy of composition*. (See paradox 13) Even if individual companies strived for growth, this does not impose an imperative for the economy to grow. Companies also go bankrupt and whole industries disappear. The strife of every hair on your head and body to grow does not necessarily make your amount of hair grow to perpetuity. Some hairs also fall off or are cut. The blind strife of most organisms to grow and reproduce does not make every ecosystem or the total amount of biomass on the planet necessarily grow to perpetuity.

Moreover, companies actually *don't* always strive for growth. Sometimes it's better to focus on maximizing profitability – especially in mature industries where overall demand is on the waning side.

Others blame our current "debt-based monetary system". It is quite interesting, how many activist groups have bought into what I call the "perpetual debt hoax". With a partial understanding of our monetary system, people have concluded that banks create money when making loans, but that the money to repay the interest is never created. This, goes the story, results in "perpetual debt" that can never be paid back.

To begin with, we have to remember the mathematical identity that all debt is *to* someone else. Credit contracts are two-sided: there is always the debtor and the creditor. (See paradox 6) We cannot owe God or a debt monster in outer space[199] in monetary terms.

The perpetual debt hoax is based on the fragment of information that "banks create money when they issue loans" added on to a faulty mental image of money to begin with. When one understands that money *is* a credit relation, one understands that banks create money whenever they make *any payment* to any non-bank entity.

(See paradox 7) This includes paying salaries to their employees, interest to their depositors and other creditors, as well as dividends to their shareholders.[200]

Debt is not "borrowed money" but promises of future services. Debts can always be repaid, as long as the net creditors buy things from net debtors, that is, pay them for anything.

As a third argument, especially advocates of the welfare state insist that the economy needs to grow in order to provide sufficient tax revenues to sustain the public sector – especially as aging demographic structures are constantly raising the *dependency ratio*.[201] But here the focus should be on questioning our current one-off retirement paradigm and pension systems that in many countries have promised too much for too little.

Also, funding the public sector by taxing trade is a bit of a dumb idea to begin with, when alternatively it could be funded by:

- taxing monopoly resources, like land,
- collecting the profits of natural monopoly industries like basic infrastructure,
- auctioning out sustainable use quotas for natural resources, (see paradoxes 11 and 13) and
- charging for public services that currently are unnecessarily (and even harmfully) free. (See paradox 19).

Such sources of revenue would not be as dependent on a constant increase in trade and, more importantly, would not hamper trade as much as *taxing trade* does. Income and consumption taxes are bound by what we could call the *Laffer Curve dilemma*: A reduction in growth would require raising tax rates, and the higher tax rates might actually further reduce economic activity so much that tax revenues actually fall.[202] Therefore, under this transaction taxation paradigm, maintaining growth seems necessary for sustaining sufficient tax revenues. This issue is further aggravated by *Baumol's cost disease* raising public sector costs, which was introduced under paradox 3.

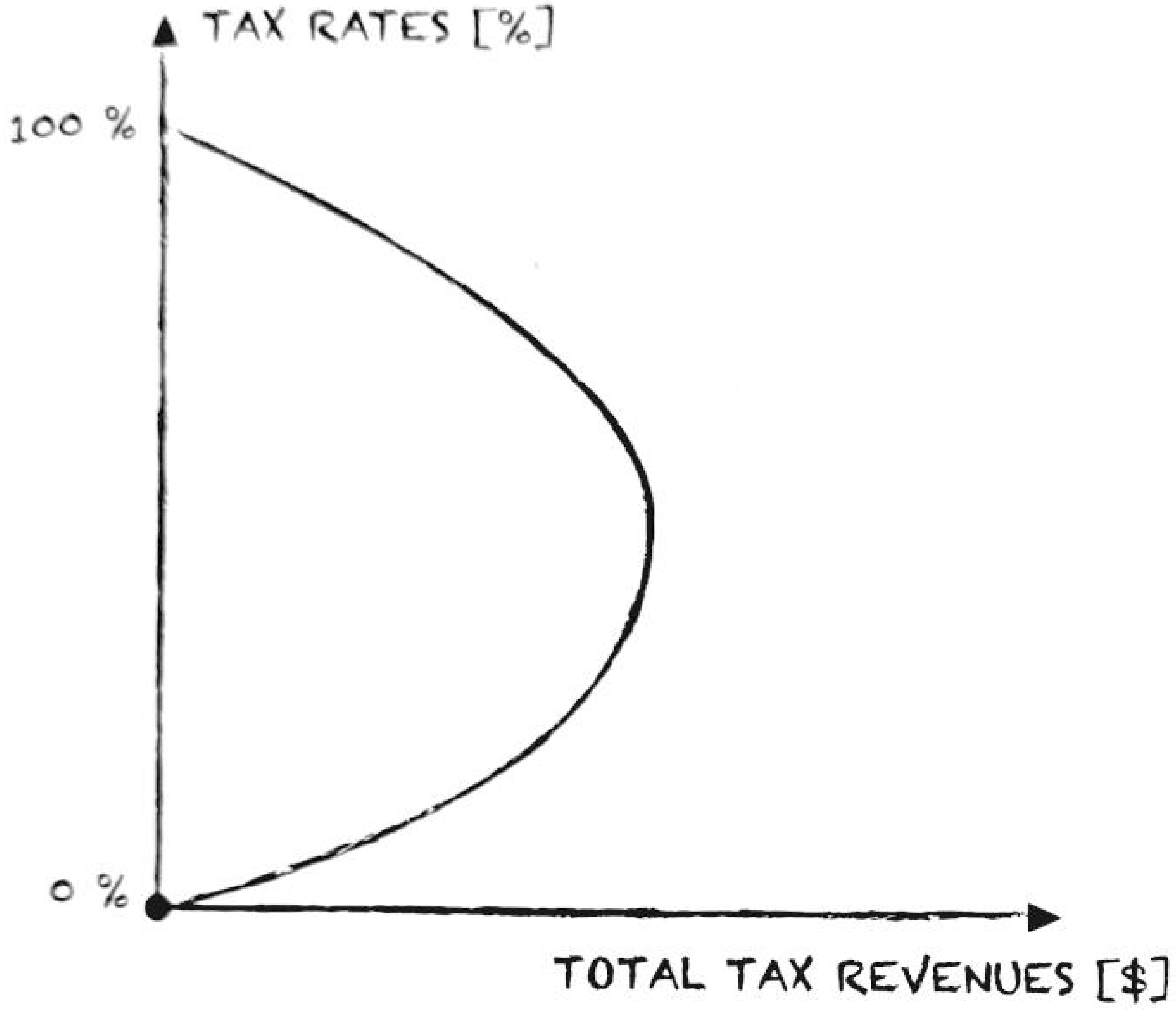

Image 9: The Laffer Curve

The real causes: the minimum wage of capital and the supply and demand mismatch

Essentially, there are only two direct causes for the growth dependence of our current economic system:

1. Growth of total consumption lagging behind productivity growth means that less work is needed than before. In the current system, this necessarily results in *less people* getting to participate in working and earning a living, because the unit of labor is implicitly a human being, i.e., work is "quantized" into full-time "jobs".
2. With no or low economic growth, there are few profitable real investment opportunities, which makes it hard to "satisfy" or "quench" people's desires to save – as long as real interest rates cannot fall properly negative.

So, to achieve a growth-independent market economy, we would basically just need to:

1. make sure that people have the realistic alternative to work less in the medium term without this increasing their risk of long-term unemployment, and
2. facilitate negative enough real interest rates to allow keeping the macroeconomy in balance regardless of how eager people are to save and how much future consumption is expected to increase (which strongly affects currently available profitable real investment opportunities – see paradox 6).

By doing these small fixes, we would essentially achieve an economy where supply meeting demand on the individual level in the labor market is not *dependent* on a constant increase in consumption. Less work would not need to mean *less people* at work. We would get closer to a situation where people can actually sell work as much as they want to buy work from others by spending and investing. Image 10 demonstrates how it would make more sense to focus on maximizing this medium-term *correlation* between earning opportunities and desires to spend and invest than on "creating jobs" to avoid unemployment.

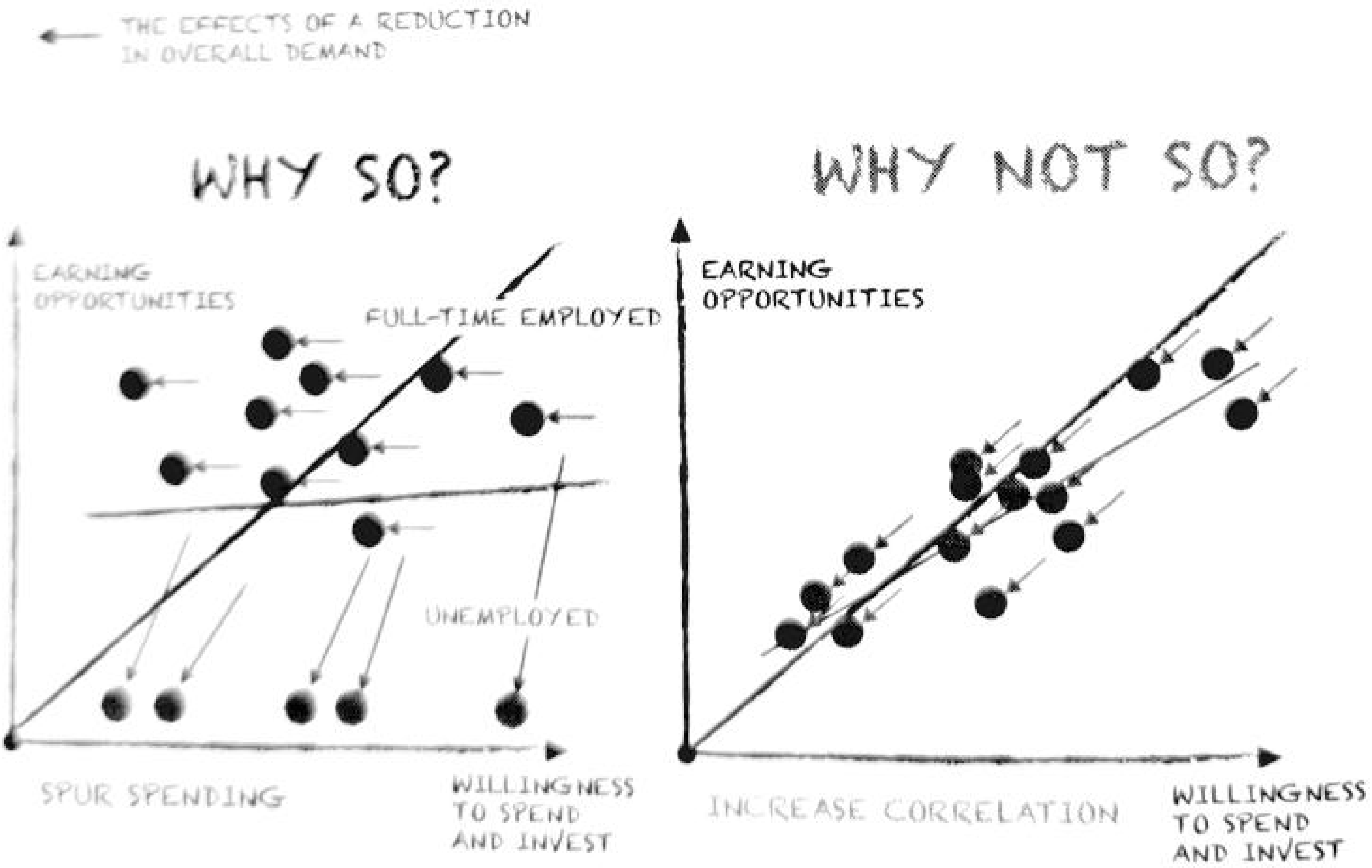
← THE EFFECTS OF A REDUCTION IN OVERALL DEMAND
WHY SO?
EARNING OPPORTUNITIES
FULL-TIME EMPLOYED
UNEMPLOYED
SPUR SPENDING
WILLINGNESS TO SPEND AND INVEST
WHY NOT SO?
EARNING OPPORTUNITIES
INCREASE CORRELATION
WILLINGNESS TO SPEND AND INVEST

Image 10: Getting supply to meet demand on the individual level instead of trying to sustain full full-time employment.

Involuntary unemployment and economic insecurity stifle growth

Simultaneously, it would also maximally facilitate all desired growth.

How exactly would it do that?

Supply-side economist would cringe at any policy that does not encourage maximal working and maximal saving for individuals. The perception that growth is *caused* by savings is also supported by the Protestant work ethic that is behind many of the moral biases of the political right. (See intro chapters II and III)

However, saving is mostly needed for investment, all investment is for production, and all production, finally, is for consumption. In a closed economy (which the world economy is), economic growth means an increase in production *and* consumption. Production without consumption is simply waste. (See paradox 2)

In the big picture, real investments facilitate saving just as much as saving facilitates investment. As explained under paradox 6, if people would like to save more than there are real investment opportunities, this results in not everyone getting earn as much as they would like to earn. This means involuntary underemployment and unemployment. Simultaneously, the economic insecurity resulting from the *fear* of unemployment encourages those who still have earning opportunities to save yet more and avoid any real investments. (See paradox 8)

Those who would like to spend are blocked from doing so by a lack of income. Those who have income and savings don't dare to spend as much as they might actually want to. As a result, a lot of potential consumption and production (and hence investment and net saving) remains unrealized.

It shouldn't be such a surprise that growth dependence is the biggest obstacle to economic growth. Desperation to get anything is often detrimental to getting it. The party that does not *have to* make a deal tends to have the upper hand in negotiations (e.g. the party with the better *BATNA*, i.e., Best Alternative to a Negotiated Agreement[203]). Being desperate to find a boyfriend/girlfriend often does not make one very attractive. Alcoholics seldom have the best parties.

Yet, in economic issues, it is surprisingly easily for people to confuse an *addiction* with the *object of the addiction*.

Less work does not need to mean fewer people doing work

If we eliminated the risk of long-term unemployment (see paradox 15) and managed to get earning opportunities better allocated to people according to their (medium-term) willingness to spend and invest, (see Image 10) we would maximize the potential for economic growth.

We could talk about "sharing work" to people according to their needs for income. But people unfortunately associate "work sharing" quite tightly with shortening the legal workweek or otherwise *restricting* the amount that people are allowed to work.

Firstly, a shorter workweek is not at all the only way for people to work less in the medium term. Depending on the industry, it might be more efficient to give people longer holidays between projects. Where even these kinds of arrangements are highly detrimental for productivity (e.g. management positions or other cases where sharing responsibility makes little sense), people could take sabbaticals between positions - if this just did not increase risks of falling off the labor market permanently.

Secondly, there is no need to discourage or prevent working more in anyway. We just need to make sure that those most desperate for the income have a chance to bargain for at least some earning opportunities, and that total desires to sell work and buy work (through consumption and real investment) are balanced.

We'll dig deeper into how to minimize risks of long-term unemployment under paradox 15.

Reducing taxes on trade can 'release' more economic activity

As said, collecting government income from natural monopolies would reduce the imperative to maintain growth for the sake of tax revenues. Simultaneously, the reduced transaction taxation would also make trade more tempting. This would "release" potential economic activity that is currently hamstrung by the tax burden. The value of potential trade that is left unrealized is also called a *deadweight loss*.[204]

By getting supply to meet demand on the individual level in the labor market regardless of total demand we can not only get rid of growth dependence, but almost eliminate *economic cyclicity* as we know it today. Painful and prolonged recessions and depressions no longer need to occur.

Of course, small changes in expected consumer demand can still cause large and sudden changes in demand for *cyclical industries*. These include production goods industries like construction, shipyards, and engineering. However, a major driver of economic cycles is the self-reinforcing mechanism of reduced demand causing economic insecurity, which again decreases demand and so on. (See Image 11) This loop can be broken by ensuring that people's access to earning opportunities is not dependent on a specific level of total demand.

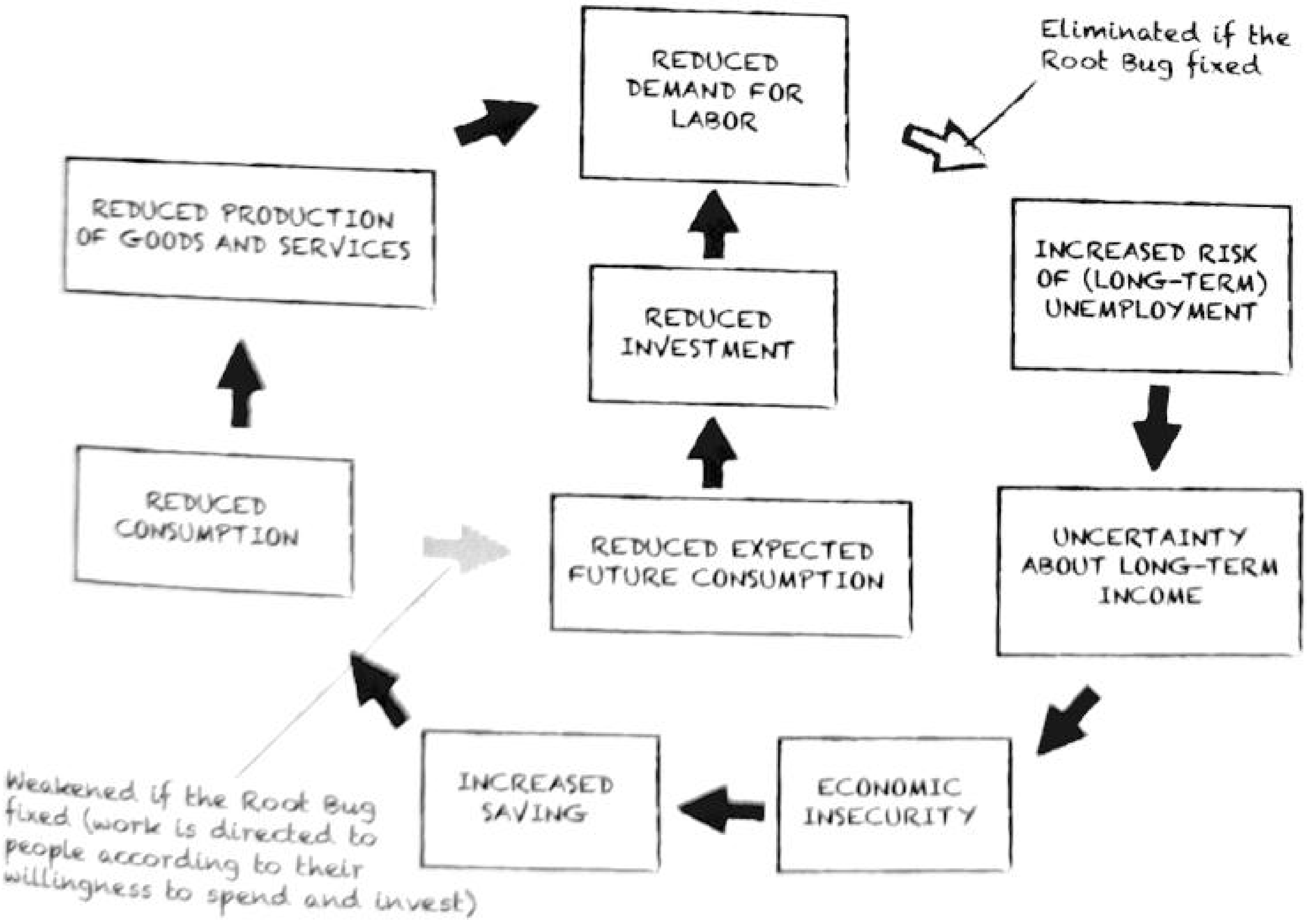
REDUCED DEMAND FOR LABOR
Eliminated if the Root Bug fixed
REDUCED PRODUCTION OF GOODS AND SERVICES
INCREASED RISK OF (LONG-TERM) UNEMPLOYMENT
REDUCED INVESTMENT
REDUCED CONSUMPTION
REDUCED EXPECTED FUTURE CONSUMPTION
UNCERTAINTY ABOUT LONG-TERM INCOME
INCREASED SAVING
ECONOMIC INSECURITY
Weakened if the Root Bug fixed (work is directed to people according to their willingness to spend and invest)

Image 11: The self-reinforcing feedback mechanism of economic cycles.

15. Sustainable Security Can Only Be Achieved through Flexibility

"Optionality will take us many places, but at the core, an option is what makes you antifragile and allows you to benefit from the positive side of uncertainty, without a corresponding serious harm from the negative side." – Nassim Nicholas Taleb, Antifragile (2012, p. 171)

Hardness is not strength

Another battleground between the economic left and right wings in politics is that between labor market flexibility – which is considered a need of companies – and labor market security – which is considered a need of workers. The left, especially labor unions, tend to try to impose restrictions and penalties on any changes in the amount of labor that companies buy.

This perceived conflict is one of the biggest misunderstandings in the history of mankind (right after money – see paradoxes 6, 7, and 8).

In a market economy where technologies are allowed to evolve freely and people's consumption preferences inevitably change, attempting to create sustainable security by trying to prevent change is not only utopia – it is self-defeating.

Essentially people's consumption choices and the technologies employed to fill people's needs determine the types of labor that are needed, as illustrated in Image 12. Also, as explained under paradox 13, in a fair market economy, companies *are meant to* go bankrupt and be replaced with ones better adapted to meet people's needs. The big advantage of this competitive system is that organizational forms can evolve without people needing to die with them.

However, this only works if no individual is dependent on a single company for her income!

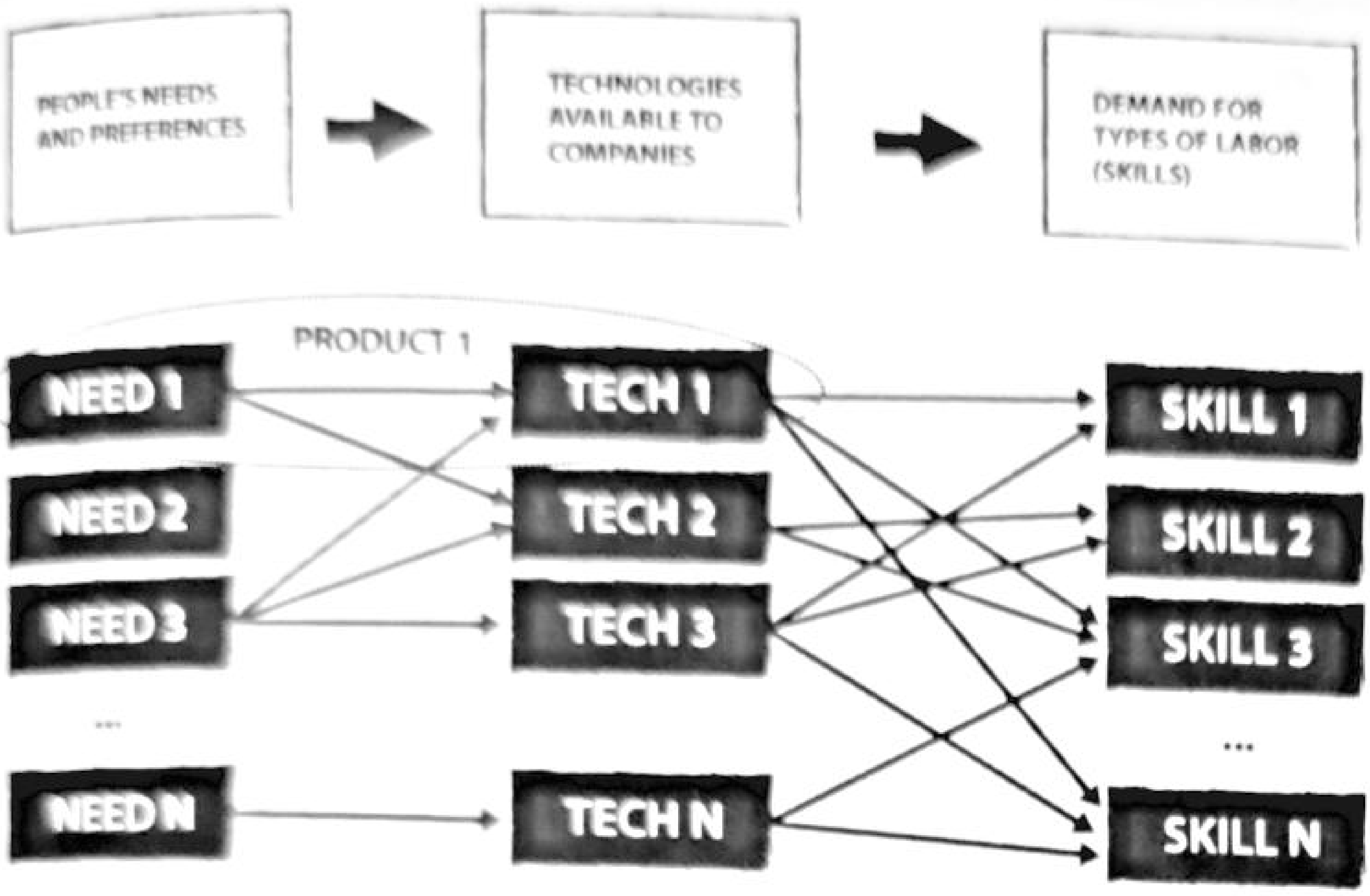
PEOPLE'S NEEDS AND PREFERENCES
TECHNOLOGIES AVAILABLE TO COMPANIES
DEMAND FOR TYPES OF LABOR (SKILLS)
PRODUCT 1
NEED 1
NEED 2
NEED 3
...
NEED N
TECH 1
TECH 2
TECH 3
TECH N
SKILL 1
SKILL 2
SKILL 3
...
SKILL N

Image 12: How people's needs and available technologies determine the types of skills required on the labor market

Even if labor unions managed to demand redundancy compensations of $10 million for every layoff, making labor reduction practically impossible for companies, this would not grant anyone sustainable economic security. It does not remove the risk of job loss due to the bankruptcy of the employer. Actually, such labor reduction sanctions increase unnecessary bankruptcies and hence increase economic insecurity.

Additionally, such risks of additional layoff costs are essentially recruiting risks! Companies will be less eager to hire new employees, if this means committing to an eternal stream of costs or large penalties regardless of how much demand there is for their products. These added recruiting risks make it yet more difficult and unlikely for people who have lost their jobs to find new employment - increasing the risks of *long-term* unemployment.

The sanctions maybe *delay* layoffs a bit and employment contract rigidities can keep people's incomes unchanged until those layoffs. However, this is merely *an illusion* of security. Hardness is not strength.

Expected long-term cumulative income is what matters for security

The logic behind rigidizing employment contracts seems to be that economic security means *a lack of variance* in income. But actually, *chronological variance*, variance in time, is almost irrelevant for economic security! What matters is the predictability of expected *cumulative* earnings in the future – the *"probability variance"* of your future earnings.

How much you earn next week specifically is not of significant importance if you know certainly that you are going to earn sufficiently to get by during the next 3 years.

By contrast, having a regular salary and knowing that firing you would be expensive for the employer does not grant much security if finding new work after losing that job is unlikely. In this situation, the *probability variance* of your total cumulative income is maximal: You might remain employed with your current salary until retirement – or you might just as well lose your job tomorrow, making unemployment support and your possible severance package (if the company hasn't gone bankrupt) your only sources of income for the rest of your life.

Nassim Taleb, in his book *Antifragile*, argues that a taxi driver with highly varying income is economically in a far more secure situation than a personnel department clerk in a large bank with a fixed salary.[205] The taxi driver isn't dependent on one client, and his long-term earnings are unlikely to fall suddenly to zero.[206]

Insiders protected on the expense of outsiders

Flexicurity is one term coined to describe a combined state of security and flexibility in labor markets. Dutch economist Hans Adriaansens originally used the term to refer to a shift from "security within a job" (job security) to "security of a job" (employment security).[207] Sadly, many institutions, such as the European Commission, still approach flexicurity as a *balance* or *compromise* between flexibility and security.

In reality, there is no conflict between flexibility and security. In fact, flexibility and adaptability are the only sources of sustainable security in a turbulently evolving world. Hardness is strength at most on the expense of others.

In "mosh pits" at rock concerts, people can bump into each other in quite a violent-looking fashion. However, this remains fairly safe as long as people keep their soft upper arms and chest facing each other. If someone falls down, he is immediately given space and helped up before the bashing continues. Damage starts happening when some people, protecting only themselves, start diving elbows or fists first into the swirling crowd.

Nassim Taleb nails this thesis:

> "The chief ethical rule is the following: Thou shalt not have antifragility at the expense of the fragility of others."[208]

The current "duality in labour markets that separates well-protected insiders from vulnerable outsiders"[209] is a chief example of breaking this rule.

It is about time that people adopted this rule as well as a "mosh pit approach" to solidarity: finding safety in mutual flexibility and "softness" as well as making space and helping up those who fall down - instead of joining in on friends' blackmail to defend their privileges.

Glass is fragile *because* it is hard. Metals are durable because they are soft: flexible and malleable. Fittingly, one of the eight paradoxes of life listed by popular psychologist Tommy Hellsten[210] is: "If you seek safety, live dangerously".

The on-demand economy and the contingent workforce

Many industries have recently been disrupted by new "middlemen" or platform providers that allow better matching consumers with providers of services. AirBnB allows regular people to provide accommodation services or rent out their apartments to others for short periods of time. Uber and Lyft are blurring the line between ride sharing and taxi services. Homejoy provided home cleaning through a similar concept.

Many are accusing this "*on-demand economy*" of exploiting workers by "misclassifying them as contractors".[211] [212] This has resulted in many lawsuits.[213] [214]

These platforms could certainly be considered to allow the utilization of cheap "servant labor".[215] However, the platform service providers are not the root cause of this exploitation. Rather, they are *exposing* (and slightly alleviating) the underlying real problems, which have previously been partly hidden by labor market privileges, minimum wages, and social security:

1. the lack of mobility between professions and industries (e.g. due to a lack of access to education), and
2. the chronic oversupply of labor that prevents fair competition over employees, sustained by the lower bound on interest rates.

These are the reasons why people don't have more and better alternatives that would force employers to improve the terms.

Similarly, the main reason some people are forced into prostitution against their will is a lack of other alternatives for making a living. Also the oppression of cheap labor in developing countries is facilitated by an overall lack of options in their labor markets. These people are seldom coerced into working in abysmal conditions at gunpoint. The threat of starvation acts as the whip.

If you want to improve the working conditions and wages of people in the Third World, possibly the *worst* way of attempting to do that is to deprive these people of their currently *least bad* source of income, by e.g. boycotting imports from poor countries.

If you really want to make all employees better off, the most effective way is to *maximize competition over employees*. Banning services that make markets more efficient and raising the threshold to buying labor from people are moves in the wrong direction.

At the same time, many skilled employees are choosing to live and work more flexibly, by selling their services to companies as freelancers. This is also called "*the contingent workforce*".[216] The lack of a fixed employment relation does not make these people worse off, as they know that there will be demand for their skills. The flexible arrangements are beneficial for both parties.

"The sharing economy" could be to the advantage of all employees if it were combined with (1) eliminating the privileges of other "insiders" and (2) the possibility of negative real interest rates that could eliminate the chronic oversupply of labor and prevent wage deflation pressures.

"We should not complain about impermanence, because without impermanence, nothing is possible." - Thich Nhat Hanh

16. By Winning in the Competitiveness Game, an Economy Loses

"The gain from foreign trade is what we import! What we export is a cost of getting those imports. And the proper objective for a nation, as Adam Smith put it, is to arrange things so that we get as large a volume of imports as possible with for as small a volume of exports as possible. When people talk about a 'favorable balance of trade' ... [i]t's taken to mean that we export more than we import. But from the point of view of our wellbeing, that's an unfavorable balance. That means, we're sending out more goods and getting fewer in." – Milton Friedman[217]

Foreign trade is not zero-sum, but current accounts are

One of the main targets of criticism in Adam Smith's great work, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, was the obsession many European countries had with accumulating gold from overseas by minimizing imports and maximizing exports.[218] He emphasized that people's living standards – the welfare that really mattered – was dependent on overall productivity in the economy, not on the amount of precious metals possessed by the government or the national economy. (See paradoxes 2 and 10)

Many other famous and not-so-famous economists have since criticized this *mercantilist* approach to foreign trade.[219] Unfortunately, Western leaders are still turning a deaf ear to these calls for sanity. The trade policies of many rich nations are focused on maintaining price competitiveness in order to spur export jobs.

Now, there's nothing wrong with encouraging and facilitating foreign trade! The benefits of the division of labor, specialization, and sharing ideas (see paradox 2) extend way beyond the borders of any single nation. But we should remember that the point of exporting is to facilitate imports! Trade is mutually beneficial and economically sustainable when it is balanced, at least in the long term.

The paradox of thrift (see paradox 6) also applies between whole national economies: If everyone just wants to sell, there aren't enough buyers, and not all willing to sell get to sell as much as they would like to sell. One national economy saving more than it makes real investments means that it is necessarily indebting other national economies.

How much a national economy falls into debt overseas is expressed by its *current account deficit*. A current account *surplus* signifies that the national economy is accumulating net foreign assets: e.g. foreign credit, equity stakes in foreign companies, and ownership of other foreign assets, such as real estate. The current account balance is composed of:

- The *balance of trade*: exports minus imports.
- *Factor income balance*: capital income flowing over borders (such as interest and dividend payments).
- *"Cash transfers"*: Assets being transferred with or by their owners.

The 'national debt' and the national economy's debt

Even if others really just wanted to buy and not sell, that isn't very sustainable, as it means falling further and further into debt overseas. This is essentially what some South-European nations like Greece seem to have done – half-purposefully letting their overall price competitiveness fall with rising wages, and expecting someone else to pick up the tab when credit taps start tightening.

With Greece, the focus is usually on the government's debt, i.e., *"the national debt"*. This is of course not the same as the whole national economy's credit position. However, it is very hard for a government to pay off its debts when the whole economy is constantly becoming more and more indebted. This would require the private sector to be willing to fall further into debt or to deplete its monetary savings.[220]

After trade between national economies has been balanced, reducing public debt can be considered a matter of

- improving the efficiency of the public sector,
- fixing its income sources (e.g. eliminating tax evasion and weeding out corruption), as well as

- balancing saving and investment desires in the private sector to avoid the need for fiscal stimulus. (See paradox 6)

The only way to pay back debts is to earn credit on others. With low accumulation of local equity, capital income is unlikely to provide a solution in the short run. So, if we really wanted Greece and developing countries to pay back their debts, we would need to *buy more from them*! That would allow their current accounts to turn positive and also facilitate the accumulation of local equity capital. This would eventually also raise local capital income, easing the deficit in the factor income balance.

And to be able to sell more, the indebted national economy would have to increase its overall *price competitiveness*.

Everyone can have a comparative advantage

It is important to understand the difference between a *comparative advantage* and *absolute price competitiveness*. *Comparative advantages* are advantages over other countries in one category of goods or services relative to other categories. Comparative advantages are what make trade value-producing, (see paradox 2) and they can exist even if country A had superior labor productivity in all product categories.

Suppose it takes me 10 hours to wash the dishes, and 5 hours the clean the house, and it takes you 2 hours to wash the dishes and 4 hours to clean the house. My productivity is inferior to yours in both activities, but I still have a *comparative advantage* in cleaning. We get by with less work overall if I specialize in cleaning and you specialize in doing the dishes (5 h + 2 h = 7 h) than if we both did our "fair share" of both chores (5 h + 2,5 h + 1 h + 2 h = 10,5 h). Me trading my dishwashing shifts for your cleaning shifts is mutually beneficial trade.

The chores would get done with the minimum amount of work if you did all of them (2 h + 4 h = 6 h), but that would hardly be a fair trade. Essentially, I would be constantly falling into "chore debt" to you.

Similarly, national economies of very different productive capabilities can benefit from mutual trade – if just prices (wages or currency exchange rates) are allowed to keep overall price competitiveness balanced and hence trade balances and current accounts balanced in the long run.

The euro crisis: demanding debts be repaid while not letting them be repaid

Solving the euro crisis would require the German (and Belgian and Dutch) wage level to rise at a very high annual rate (e.g. 10-15 % per year) in order to make the South European debtor nations sufficiently competitive again: This would make foreign goods less tempting for their citizens and allow them to export more goods – not only to Germany. Rising German wages would likely *devalue* the euro, i.e., make its exchange rate with other currencies fall. This would also ease exports to countries outside the currency region.

Differences in competitiveness could also be balanced by falling wages in the deficit nations (assuming that the surplus nations don't follow suit). But the problem is that falling wages and prices mean *deflation*, and, with nominal interest rate at their lower bound, deflation means *higher real interest rates*. A rise in real interest rates would both encourage further saving and make real investments less profitable, (see paradox 6) further aggravating the investment recession plaguing the whole eurozone.

In any case, Germany seems reluctant to give up its price competitiveness and gargantuan trade surpluses. In traditional mercantilist terms, Germany has "won" the competitiveness game, and doesn't want to stop "winning".

And it has won it with the help of the euro. Essentially, Germany would be unable to sustain its surpluses without the euro and the low-competitiveness nations in it. The euro effectively imposed a "cease fire" on the earlier *currency war* of repeated *devaluation* between European nations. This left *internal devaluation* (as wage restraint is often called) as the most effective weapon in the price competitiveness game – a weapon that Germany is just way too good at wielding.

Putting it another way, the euro system is a "debt leash" on which Germany keeps the rest of Europe.

As Larry Summers says:

> "[T]he Germans' desire to maintain surpluses seems quite problematic relative to the desire to have others adjust."

Germany is simultaneously:

- *demanding* that the debtor countries repay their debts and
- trying by all means to *prevent them from repaying* their debts: becoming competitive enough to be able to sell something back to the Germans.

As said, debt is *not* "borrowed money" but promises of goods and services in the future. (See paradox 7) Debts are paid back by producing and selling something of value to the creditors. (Also, providing finance can be considered providing risk-bearing services.)

This situation of the eurozone is a great example of how, by "winning the competitiveness game", a nation eventually loses. The current account surpluses accumulate credit on other national economies. This credit is essentially claims on goods produced by those other economies. If the national economy, e.g. that of Germany, never uses this credit to buy things from those other nations, it gains no real benefit - even if it might look like the economy is flourishing due to high employment and the accumulation of wealth in the form of foreign credit. If the debtors *default* on the debts (i.e., are unable to pay them back), the outcome is that the national economy has produced a lot of goods for foreigners for free! In the process, it is likely to have done a lot of damage to the economic development of these trade partners.

No one could really be so evil that they would purposefully ruin the economies of other nations and in that way impose immense credit default losses on themselves. Hence, we have to conclude that both the euro crisis and the poverty of developing countries are sustained by pure stupidity: trying to achieve the mathematically impossible.

Poverty is sustained by stupidity and short-termist interest-group politics

Rich countries overall are keeping a similar debt leash on developing countries, trying by all means to prevent them from becoming too competitive.

If we really wanted developing countries to raise their living standards, we would need to allow them to increase their overall productivity and to become more competitive in higher-paying industries. The best foreign aid would be to stimulate export industries in developing countries and to buy more things from these nations. Instead, rich countries are focused on doing the exact opposite - protecting their own industries and jobs by any means, as well as stimulating more exports *to* the Third World.

Also our economic morality sustains this modern version of mercantilism: Buying local whenever possible is automatically considered the right thing to do, and companies are blamed for "social irresponsibility" if they move their production to low-income countries and give earning opportunities to those most desperate for them.[221]

Sovereign credit risks and the interest-group-political dimension

In the case of Germany and the eurozone, there is of course also an internal interest-group-political dimension: Those who have earned their wages and made their profits through export industries are not the same parties who end up directly suffering the potential credit default losses. Currently, the credit risks of the Greek national and private debts are carried by all euro nations via the new stability vehicles (such as the ESM[222]), the ECB, and the IMF.

Before the first Greek bailouts, the direct credit risks were on private banks and investors. Letting Greece default on these private debts would not have been a very sustainable solution either. This would have effectively imposed high risk premiums on all eurozone public debts from there on, making the interest rates unbearable. Many commentators and activist groups have claimed that, in the Greek bailouts, "most of the money has essentially gone to private banks."[223] That is true, but it was still just as much about bailing out Greece as the banks. As said, *finance* is not about giving money, but about carrying risks. (See paradox 7) Even if the money went to banks, the bailout packages have still been *financing* Greek debt - taking on risks that the private banks are no longer willing to carry. The support is not the "money given", but the cheap credit granted.

Had Greece been allowed to default on the private banks and investors, the ECB would likely have had to prevent the rise in risk premiums by financing all euro states directly - by holding all of their bonds from there on. It could then issue "eurobonds", collective bonds of all the eurozone states, if it wanted to prevent this "extreme quantitative easing" from causing a massive expansion in central bank money.

A currency union is a complicated exception in many ways. When a nation has its sovereign currency, it does not make sense for its bonds to have default risk premiums, as the government can always repay these bonds with new central bank money. All money in the economy (including bank deposits - see paradox 19) is finally guaranteed by the government. The physical notes and coins of a currency are actually just kinds of liquid government bonds.

> **"Economists disagree about a lot of things but one thing they all agree on is (that) the sum of all global exports has to equal the sum of all global imports. As long as trade with Mars and Moon remains limited." ... "It is simply impossible for all countries to have a surplus! That's arithmetic." - Joseph** Stiglitz[224]

17. Trying to Attract Money Decreases Competitiveness Over Productive Investments

"[T]here's no clearer example of the fallacy of composition than the suggestion sometimes heard that Germany made a very difficult set of adjustments in the earlier part of the last decade, and if every other European just bit the bullet and did the same thing, all would be well – which fails to recognize that much of that adjustment took the form of running a substantial current account surplus financed with vendor finance to the rest of Europe."[225]

Capital income taxes don't make capitalists 'pay'

The economic left and many activist organizations tend to complain how liquid global capital markets allow financial capital to "flee" to wherever it can make the biggest profits. Is the inevitable outcome of this that the profits capital makes must keep on rising all the time until almost all income goes to holders of financial capital?

No, it isn't.

International tax competition surely imposes a pressure on governments to lower corporate and capital income taxation, and this can be argued to lead to a kind of "race to the bottom" on these taxes. However, capital income taxation has never been the most efficient form of taxation, nor the most effective way to constrain the profits "capitalists" make.

Firstly, it is a far better idea to tax natural resources and privileges like land (see paradox 11) than profits. Economic rents form the unearned part of profits. Rent is "unnecessary compensation". (See paradox 10) Taxing these economic rents provides public income and reduces the returns on financial capital *without* negative incentive effects or deadweight losses on productive activities like real investments. (See paradox 14)

If you want to keep profits to a minimum, the best thing to do after taxing natural resources is to keep competition between companies as fair and as tight as possible, avoiding the formation of private monopolies, cartels, and privileges. (See paradox 13)

If competition were perfect, the profits of companies would be reduced to their costs of capital, leaving no *economic profit*.[226] In such a theoretical situation, taxes on capital income and profits could not lower profits further. Raising these taxes would simple raise *pretax profit requirements*, and the cost burden of the tax would fall either on employees via lower wages or on consumers via higher prices of end products.

Of course, competition is never perfect in reality. Nevertheless, taxes on capital income (1) cause overall efficiency losses, and (2) do *not* fall fully on investors. Instead, taxes on monopoly resources and other sources of economic rents (see paradoxes 10 and 12) simply reduce those rents, without discouraging value-adding trade or production.

Real investment does not require holding money

Secondly, in thinking about this "competition over capital", we often have the perception that "capital is money" and that national economies first have to *attract money* into the country in order to attract investments and production there. However, being competitive *over investments* is almost the *opposite* of being competitive *over money* and other credit-formed savings.

When a company or investor makes a real investment in your country, e.g. builds a factory or wind farm, she hardly needs to hold credit in the country's currency at all. All of the financial capital can be kept in other currencies until wages need to be paid to the employees working on the investment project. Additionally, the investor can choose to leverage that investment with local credit, meaning that he essentially has a *net negative* position (also called a *short position* in finance terms) in the local currency during most of the project!

Actually, the best way to increase a national economy's (or currency region's) competitiveness over real investments is to keep its currency's real interest rate *as low as* possible. In other words, minimizing a nation's competitiveness over risk-averse, unproductive financial capital maximizes its competitiveness over risk-bearing, productive financial capital!

This is because lower returns on credit devalue the currency relative to other currencies.

Currencies have to be traded

When currency exchange rates are allowed to "float", they are determined by supply and demand on the international market.[227] Anyone with dollars wanting to get euros (euro-denominated credit, to be more precise) has to find someone who wants to sell euros and someone who wants to buy his dollars.

People and institutions acquire credit in foreign currencies for multiple reasons:

- In order to buy products or services sold in that currency
- In order to make a real investment using that currency
- As an investment in itself to include in their financial portfolio

In the end, the real goods, services, and labor that one expects to be able to buy with a currency have the biggest influence on how much foreigners are willing to pay for a currency. But this alone is no reason for them to want to *hold* that currency for very long.

In order to want to hold credit in a currency, they also want the credit to *maintain* its purchasing power and market value fairly well. As explained under paradoxes 5 and 6, the *real interest rate* is essentially the expectation of how well savings in a currency are expected to maintain their purchasing power.

If a nation's currency has a lower real interest rate, foreigners will only acquire that currency temporarily for real investments or consumption (e.g., importing goods from the country). Foreign investors not willing to carry risks will prefer to hoard risk-free credit in other currencies with a higher expected real return. Some of the country's local investors might also prefer to invest more in foreign bonds, though, for them, foreign bonds of course involve an *exchange rate risk*, which raises the threshold to do so.

All of this devalues our nation's currency relative to others, and this devaluation lowers our nation's real labor costs relative to those of other national economies! This attracts more production and real investments inside our national borders.

No 'race to the bottom' in nominal wages is necessary

If the central bank targets inflation (see paradox 7) and we have a flexible and adaptable labor market (see paradox 15), this starts raising interest rates only when the excessive foreign demand starts causing a labor deficit and hence high pressures to raise wages and prices – i.e., inflation pressures.

As empirical examples, European countries outside the euro, including Sweden and Denmark have successfully kept their currencies devalued with exceptionally low interest rates.[228] After the Swiss National Bank stopped maintaining an *exchange rate floor* between the franc and the euro with direct market operations, it, too, has lowered its policy interest rates negative to reduce upwards pressures on its currency.[229]

So, no: Liquid global capital markets do not need to result in a "race to the bottom" *in wages*! As long as exchange rates can fluctuate freely, they do the adjustment of relative labor costs between currency regions. And the foreign exchange rate of a currency is best kept low with *low real interest rates*.

Facilitating negative real interest rates (see paradox 5 and 6) and charging a proper fee for the deposit guarantee provided by the government (see paradox 19) would hence be very competitive strategies. As long as physical cash in the currency exists, facilitating negative rates actually requires a higher inflation rate, and hence constantly *rising* nominal wages!

Both a free deposit guarantee and sustaining an unnecessarily high real interest rate are essentially harmful *subsidies on risk-free capital*. They cause deadweight losses and *reduce* competitiveness over real investments. In addition, they also raise investors' profit requirements for real investments, reducing overall investment and possibly raising the income share of capital (See paradox 18)

18. Minimum Wages Increase the Income Share of Capital

"Each union is forced to use its power to try to increase the share going to its members even though its more intelligent leaders know that what it gains is not from the employer, who can and will pass any wage increase on in higher prices, but from the population as a whole – which means in the main from other workers and their families. They also know that other trade unions will have to do the same so that there is nothing left but a general inflation. For any particular trade union to restrain itself in the scramble may merely mean that it is left behind while the inflation continues." ... "The side-stepping of collective bargaining will undoubtably be denounced as an attack on labor. It is important to note that it will appear so only to those who in their thinking have completely substituted labor unions for the workers, raising these instruments for improving the economic welfare of labor to the status of end in themselves." – Abba P. Lerner[230]

To lower returns on capital, lower capital costs

In an economy, it is usually a good idea to minimize costs. If we can get something done with fewer resources or less labor, or if we find a way to make a kind of labor more enjoyable (i.e., less costly in real terms), it's always an improvement. Attempts to maximize the price of a resource are usually attempts at *rent seeking*: reaping a gain on the expense of others. (See paradoxes 10 and 11) The ability to maintain higher rental fees on apartments by sustaining an accommodation deficit is one example of such extraction of additional economic rent. (See paradox 12)

As explained under paradox 5, the risk-free market interest rate is the price of risk-free capital, in other words, the price of *timing, impatience*. Also the costs of capital should be minimized. In other words, the lower we can get the real market interest rate without causing pressures of accelerating inflation (as a result of an overall labor deficit) the better! Lower costs of capital mean that is cheaper to invest in the future (even the distant future) and that owners and creditors need to be compensated less for owning and waiting for real benefits.

Essentially the long-term profits financial capital makes are (1) restricted below by the costs of capital and (2) pushed down by competition. If the political left wants to minimize the income share of capital and maximize the share going to providers of labor (workers), it should be focused on:

- eliminating private monopolies, privileges, and other rent-seeking opportunities, (see paradox 10),
- maximizing the efficiency of competition between companies, (see paradox 13) and
- achieving as *low* interest rates as possible!

Funnily enough, many left-wing activist groups have been lured into blaming too low interest rates for the high profits of investors. It is quite easy when we have this prevalent, outdated perception of debt as borrowed money and interest as "rent" on such borrowed money, (see paradox 7) and when our moral biases make us focus only on the debtor's side of the credit relation and omit the creditor's side and the *costs of equity*. (See paradox 5)

So, how do we minimize interest rates - especially the risk-free deposit interest rates, which determine the costs of equity?

To begin with, obviously, *facilitate* negative real interest rates! (See paradoxes 5 and 7) Without the possibility of real rates falling, increased desires to save are only going to cause a worse investment recession, more unemployment, and possibly a deflation spiral that is nothing but a massive transfer of wealth from debtors to creditors. (See paradoxes 6 and 8)

Minimize other sources of inflation pressures

Ok, let's assume we are now liberated of the lower bound. What then?

Essentially the only constraint on lowering interest rates is that we run into a labor deficit and accelerating inflation pressures (which might lead to hyperinflation). As explained under paradox 8, inflation is mostly driven by pressures to raise nominal wages. So if we want to lower interest rates as low as possible, we need to remove or minimize *all other factors* that might impose upwards pressures on wages or prevent downwards pressures.

And what prevents downwards pressures on wage? Wage regulation, collective bargaining, and generous social security.

Few would deny that if we removed minimum wages and tightened social security e.g. in Europe in the current situation where interest rates are stuck at the lower bound, we would have a massive "race to the bottom" in wages, as people would be even more desperately grasping for the few available jobs by offering to work for lower and lower pay. (See the paradox of toil under paradox 6)

This means that whenever the economy is not at the lower bound, wage regulation and generous social security maintain a *higher* balance interest rate and hence *higher costs of capital*!

A deflation spiral would of course be even worse

One can almost hear the cognitive dissonance that this chapter is now causing in advocates of traditional left-wing policies. So, minimum wages, collective bargaining, and welfare can actually increase the income share of capital!

Now, it would be counterproductive to dismiss a conclusion only because it is inconvenient (although people have a tendency to do that[231]). Of course, a deflation chain reaction as a result of plunging nominal wages would not be an improvement to the current situation.

However, wage regulation is not *a solution* to the root of the problem, which is a chronically low overall demand for labor. It is merely a symptom treatment. The solution is removing the lower bound of interest rates - the minimum wage of capital. (Additionally, you would also have to tax land to prevent this monopoly resource from bubbling up madly and becoming even less efficiently allocated - see paradoxes 9 and 11.)

Moreover, it is good to keep in consideration that when we are freed of the shackles of the lower bound, there might be a tradeoff between:

- providing generous social security (in the form of e.g. a citizen's salary, a.k.a. basic income) to minimize economic insecurity, and

- minimizing the risk-free interest rate to maximize the overall income share of labor.

Maximizing the demand for labor relative to supply would also maximize competition over employees, i.e., the choices available to them, increasing both economic security and labor mobility.

Minimum wages and collective bargaining necessarily reduce the number of choices available to employees overall. As explained under paradox 15, any additional bargaining power they grant to protected insiders (the currently employed and union members) comes on the expense of vulnerable outsiders - by blocking them out of the market.

"Labor cannot increase its share at the expense of capital." - Eugen von Böhm-Bawerk

19. Securing Deposits for Free Makes Banks Unstable and Bank Regulation Expensive

"A deposit insurance system is like a nuclear power plant. If you build it without safety precautions, you know it's going to blow you off the face of the earth. And even if you do [implement the safety precautions], you can't be sure it won't."
- L. William Seidman, Chairman, FDIC

A free insurance is a subsidy

Usually, if you want to reduce the risks of something, you get an insurance. However, public insurances can be sources of massive *moral hazards* – especially in finance. Actually, it is precisely a free insurance that makes the banking sector so unstable and bank regulation so expensive.

Of course, not all insurances are the same. For example a modest public health insurance can be a good way to increase everyone's personal economic security and wellbeing. (People are not very rational when it comes to these kinds of risks, and might skip taking a health insurance when their own economy is tight.)

Some might argue that public health insurances can discourage people from taking care of their own health. There is some evidence that improved protective gear or safety equipment may increase rough playing and risk taking e.g. in contact sports and driving cars.[232] Such *risk compensation* is also called the *Peltzman effect.*[233] [234] [235]

It's noteworthy, though, that a health insurance can never cover for all the *real costs* of falling ill or breaking a leg. Even if all treatment and medical bills were paid, there's still the physical pain and the frustration of not being able to do more worthwhile things than lying in bed. These maintain an incentive to remain in good health, despite inexpensive healthcare.

Even if you had a Super-Mario-style "extra life" technology – a technology that allowed anyone to be "respawned" perfectly healthy after any kind of accident and eliminated all the pain involved – and such a service were provided publicly free of charge, there isn't much to gain in risking one's life unnecessarily. (People might speed more on highways, and employers might be less worried for workplace security.)

However, imagine that some brainy politician was tired of the lives that Las Vegas and online gambling were destroying and managed to push through a law that granted a full or partial refund to anyone who lost her money on roulette. The *upside* of winning big would remain, but the *downside* of losing your fortune would be eliminated or softened. This would *encourage* everyone to gamble with as high stakes as possible! The *expected value* of the outcome would rise notably.

The situation is pretty much this ridiculous with the free public deposit insurance system and the finance industry.

No, I am not comparing the financial sector to gambling in the (quite popular) derogatory sense of suggesting that it would be a useless game of chance merely redistributing wealth more unequally. Finance is very necessary and valuable. We need people to carry risks and to evaluate which investment risks are worth taking. Also, e.g. the stock exchange grants investors valuable *liquidity*, allowing people to invest in companies without committing their savings for a lifetime.

However, similarly to gambling, softening the downsides causes an incentive to raise the stakes and the variance. There is a lot to gain in taking reckless risks in the financial markets if you can pass even part of the risks onto others.

As explained, the function of the financial sector is to price risks and to allocate them to those in the most suitable position to carry them. (See paradoxes 5 and 11) Risks have costs. A free insurance is therefore a *subsidy*. Now, if you grant one form of finance a subsidy, there is a significant incentive to use that form of finance as much as possible in order to be able to collect as much of this subsidy as possible.

Most developed countries have a public deposit insurance system. Where there is no explicit system, there is still often an *implicit* deposit insurance, meaning that people expect the government to bailout depositors in case a bank goes bankrupt.

Banks sometimes pay small contributions into a deposit insurance fund, but these fees do not depend on the individual bank's business risks and are not even close in magnitude to the bank's other costs of credit. Hence, this below-market-price, practically free deposit insurance is a subsidy, and it allows banks to transfer part of their risks to taxpayers.

The deposit insurance is what makes money money

Economists have been arguing fiercely about public deposit insurances. The trouble is that, on the other hand, without a deposit insurance system, the deposits a Barclay's (B) *would not be the same money* as deposits at HSBC (H). Even if the value of both were tied nominally to pounds, £10 of B money would not necessarily trade at par[236] (i.e., the same market value) with £10 of H money if people e.g. perceived B's bankruptcy risk to be higher.

This would also make account transfers between the two banks more difficult, as the differences in transactions could not be cleared directly with central bank money. Someone would have to buy your B's deposits and be willing to sell H deposits if you wanted to make that transfer from a B account to a H account. The deposit guarantee and the banks' accounts at the central bank are what make deposits liquid.

Secondly, there is the problem of *bank runs*. Here, it is important to understand the difference between *liquidity* and *solvency*.

What matters most for the stability of a bank and the security of its deposits is the bank's *solvency*. Solvency means whether a bank has sufficient *equity* to carry the risks of its assets. (See Image 13) Solvency depends on the bank's *debt-to-equity ratio* and the volatility (i.e., riskiness) of its assets. A bank with lots of debts compared to its total assets is not very solvent. This imposes big risks on both creditors and shareholders. We say that such a bank is *highly leveraged*. Much like a physical lever can turn a weak force into a strong one, debt leverage can turn a small variance in the market value of a bank's assets into big risks for the bank's shareholders.

However, if deposits are withdrawable as cash overnight but there is no deposit guarantee, banks are subject to recurring *bank runs*. Even quite solvent banks can tip over unnecessarily as the result of mere rumors that make people rush into get their savings out as cash. The bank goes bankrupt as the result of a *liquidity crisis*. This was the situation in the 18th and 19th century United States, before the Fed started acting as *a lender of last resort* and a deposit insurance system was established.[237 238]

Liquidity, in the case of a company, means whether the company has enough liquid funds to pay its immediate short-term dues. Most of a bank's assets (mortgages, other "loans", and maybe some real assets like real estate) are not very liquid, while deposits are supposed to be perfectly liquid. We say that banks perform a *liquidity transformation*". Without a deposit guarantee and a lender of last resort, this transformation could be considered a bit of a fraud.

Without a public deposit guarantee, depositors would also have to constantly monitor their bank's solvency, which is not very convenient or optimal. It makes far more sense that most people can keep their savings risk-free by default (pun intended[239]) and that the solvency of banks is monitored by large institutional investors and everyone else willing to take risks on the bond market.

It's only a problem because it's free

There's nothing wrong with having a state deposit insurance system as such. The state with its taxation monopoly is the most solvent entity in the economy - or at least would be if it taxed land and collected the rents of natural resources. (See paradox 11) It hence makes a lot of sense that it acts as the final guarantor of money and the value of the currency unit - the default-risk-free investment option.

The problem is that the guarantee is currently practically *free*. That is what makes it a subsidy and allows private banks to profit from imposing their risks on taxpayers.

The obvious, superior alternative that is missing from public discussion is that all liquid deposits on bank accounts are insured, but that this insurance has a notable fee on it, e.g. 3 % per annum.

If it were then required that banks would have be able to acquire bankruptcy-risk-carrying credit finance (i.e., to sell their own bonds) at risk premiums lower than this fee, it could be guaranteed that deposits are never the cheapest form of finance for banks. If the market value of a bank's bonds fell too low, the bank would be required to issue new shares to regain sufficient solvency. Additionally it would be punished for the breach of solvency requirements. In that situation, there would be no incentive to overutilize the deposit insurance (quite the contrary, as will be explained).

Surely, the bankruptcy of a bank would still impose costs on the public sector, but the deposit insurance fee would bring in far more revenues in the long run. Instead of providing a harmful subsidy on credit finance via banks, the state would essentially be running a very profitable insurance business!

Anyone not willing to pay the deposit insurance fee could "circumvent" this cost legally by instead keeping her savings as bank bonds, and hence agreeing to carry part of the bank's risks of bankruptcy. As explained under paradox 8, with today's liquid financial markets and possibilities of automatic trading, there is little need to hold significant liquid credit balances merely for being able to conduct transactions. And even if one kept a full month's salary as a deposit buffer, a 3 % per annum deposit insurance would end up costing less than 0.3 % of a person's income.

Bank regulation is an expensive symptom treatment for an expensive subsidy

The most ironic thing with the free deposit insurance is that – in addition to it being costly to the public sector in itself – it is also a significant part of the root cause for the need for a heavy and costly bank regulation systems!

After the financial crisis, bank regulations have tightened significantly and whole new institutions have been established to make sure a similar meltdown does not occur again.[240] Total compliance and regulatory costs are estimated to be in the tens of billions.[241]

Understandably, The Financial Crisis left a notable trauma. But where does the need for such heavy regulation come from?

1. We fear that our fragile economy could not handle the bankruptcy of a large bank without collapsing altogether (a.k.a. the "too important to fail" problem of "strategically

important financial institutions"[242]).

2. It is currently very *profitable* for banks to maintain *low solvency*, i.e., to be constantly on the verge of bankruptcy.

Fixing the first part requires making the economy more adaptable and antifragile to shocks as well as eliminating the self-reinforcing mechanisms of economic insecurity that drive depression cycles. (See paradoxes 14 and 15 and Image 11) Of course it also requires working bankruptcy processes for large financial institutions. These have already been set up in most developed countries.[243]

The main factor making it profitable for banks to maintain low buffers of equity is the free deposit guarantee.

According to the *Modigliani-Miller theorem*, the *capital structure* of a company – i.e., how much credit finance it employs relative to equity – should not affect its market value. (Fittingly, it is also called the *capital structure irrelevance principle*.) But as said, when a form of credit finance has a public subsidy, it becomes profitable to use as much of it as possible. With normal, non-bank companies, rising leverage should raise the risk premiums demanded by creditors. Depositors don't care about the bank's solvency: Because of the deposit insurance, they don't carry any default risks.

Before the financial crisis, the Icelandic banks Glitnir, Kaupthing, and Landsbanki had *leverage ratios* of 15-20, meaning that they only had around 5 % equity of their total assets – and very volatile assets they were, too.[244]

In addition to the deposit guarantee, there are two other factors encouraging excess leverage. Firstly, any expectations of *bailouts* in the case of bankruptcy reduce downside risks and increase the profitability of leverage.

Secondly, corporate taxes create the "*tax shield*" of debt: In many countries, interest costs are deducted before corporate taxes, and hence dividends are "double taxed" while interest is not. Interest has only capital income taxes paid on it. This acts as a subsidy on credit finance in general, also for non-bank companies.

Not only would the fee on the deposit guarantee make it profitable for banks to remain solvent, but it would also make it profitable for them to be more *transparent*. Investors would have a higher threshold to invest in a bank whose risks were hidden – if only they d to carry all of the risks themselves. A bank with a clear balance eet would likely get cheaper credit and have lower costs of equity.

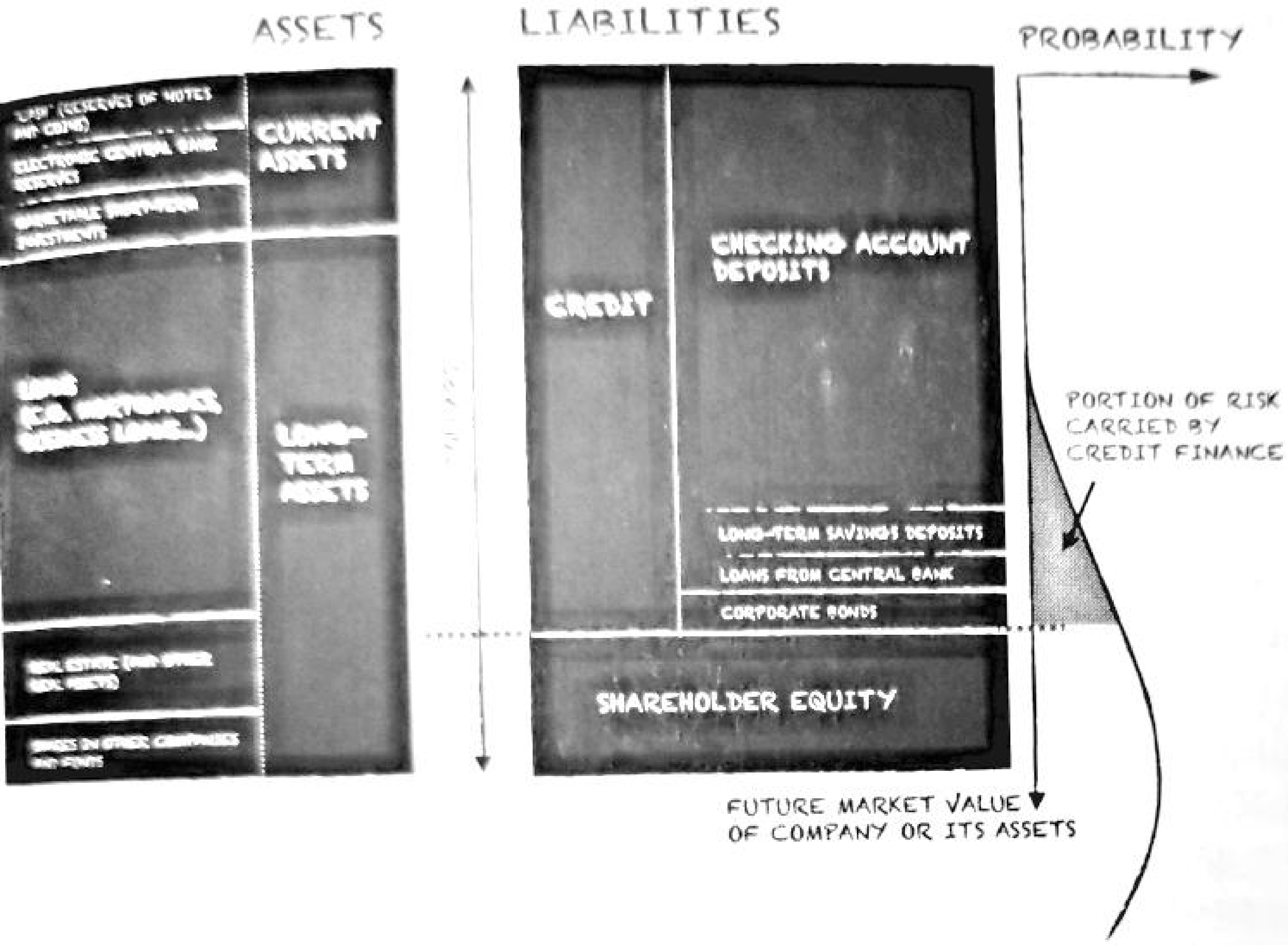
ASSETS
LIABILITIES
PROBABILITY
ELECTRONIC CENTRAL BANK
CURRENT ASSETS
LONG-TERM ASSETS
CREDIT
CHECKING ACCOUNT DEPOSITS
LONG-TERM SAVINGS DEPOSITS
LOANS FROM CENTRAL BANK
CORPORATE BONDS
SHAREHOLDER EQUITY
PORTION OF RISK CARRIED BY CREDIT FINANCE
FUTURE MARKET VALUE OF COMPANY OR ITS ASSETS

Image 13: Low equity imposes a bigger part of a bank's risks on deposits and other credit finance

Our current bank regulation, quite the contrary, encourages banks to be *less transparent*. The different *capital requirements* in the Basel accords are tied to certain asset classes[245] and hence encourage repackaging the bank's assets in new ways to lower these requirements - often outside the bank's main balance sheet. This results in far more complicated and obscure financial structures.

While regulators are trying to scrutinize banks more closely and keep the regulatory requirements up to date with latest financial innovations, large financial companies are hiring the best talent to attempt to comply with these new regulations - and then to circumvent them and minimize the costs the regulations impose.

Kenneth Rogoff, descriptively, calls this a "financial arms race".[246]

A more stable economy, less leverage, and additional non-distortionary public income

Imposing a fee on the deposit guarantee would essentially allow a market-based solvency metric and regulation system for keeping banks solvent and transparent.

In addition to this, it would likely have three other benefits.

Firstly, it removes the overall subsidy from bank credit, which would reduce the total quantity of debt and leverage in the economy. A large increase in leverage tends to precede financial crises. An overall higher proportion of equity finance would make the capital markets far more robust to shocks.

Secondly, people would likely keep a smaller portion of their savings as liquid deposits, and instead hold more bonds with longer *maturities*.[247] This stabilizes overall demand and reduces the risks of *hyperinflation*: If people suddenly want to spend off their savings, they would have to first sell their bonds to someone else. (See paradox 8) If everyone wanted to do so at once, this would force people to sell their bonds at a huge discount. Therefore, a collective spending spree becomes game-theoretically less likely. Anyone who "guesses" the hyperinflation wrong makes an immediate loss – unlike with spending off cash or liquid deposits (the faster you spend, the less likely you are to lose the value of your savings).

Thirdly, it would increase government revenues and allow reducing harmful transaction taxes further. There are of course the direct insurance fees flowing to public coffers, but, as said, instating such a fee would be likely to notably reduce the amount of liquid deposits on the market. The more significant income comes from the reduced costs of government debt.

The insurance fee essentially pushes an extra "wedge" between bank deposit rates and "lending" rates. (Currently, the free insurance acts as a subsidy and allows banks to provide "loans" at lower margins.) As both deposit and lending rates affect people's desires to save and the costs of capital for real investment, (see paradox 6, Image 5) deposit rates are likely to be lower in the state of balance when the fee is implemented – assuming there is no lower bound in the way.

The returns expected on deposits determine the return that investors require on government bonds. It is hence likely, that (a) without a lower bound on interest rates and (b) with a proper deposit insurance fee, many governments would have *negative real interest rates* on their public debts most of the time. Government debt would hence become a source of revenue (in real terms) instead of it being an extra cost burden. E.g. Germany and Finland have already had negative real yields on their government bonds for some time.[248] [249]

Of course, this is a possibility that the political right wing does not want people to understand or even consider, as it repeatedly argues against public debt with the excuse of the interest costs it imposes on taxpayers.[250] (See intro chapter II)

There are valid arguments against excessive public debt, such as increased instability and hyperinflation risks. (See paradox 8) However, as the real balance interest rate might be negative even in the long run, interest costs are not one of them.

"Pigouvian taxes are more efficient than quantitative limits in addressing air pollution externalities, and that lesson applies to financial pollution. By taxing run-prone liabilities, those liabilities can continue to exist where and if they are truly economically important. Issuers will economize on them endogenously rather than play endless cat-and-mouse games with regulators." – John H. Cochrane (2014, p. 3)

IV. Epilogue – Complex Problems Don't Require Complex Solutions

"Ultimately innovation is about asking different questions if you want different answers." – Mary Lou Jepsen[251]

There's an old joke about an economics professor and his student walking across the university quad.

> "'Look,' says the student, pointing at the ground, 'a five-pound note.' 'It can't be, replies the rational professor. 'If it were there, somebody would have picked it up by now.'"[252]

This joke exhibits the efficient market hypothesis (EMH), which assumes perfect knowledge and that this knowledge is already included in prices on the financial market. In such models, there can be no "free lunch". If there were, it would have been eaten already instead of all the ones that cost something. Deep down all economists of course know that the real world does not work this way.

However, this same mindset seems to be transmitted to their attitude towards possible economic policies and solutions to economic problems: If there were simple solutions, someone would have come up with them already, and they would be thoroughly researched. Hence, if there were a solution to the current troubles with the economy, it would have to either be very complicated or at least involve some really painful tradeoffs and sacrifices.

As presented in intro chapter II, in the debate over economic policies, there is presumed to be a tradeoff between total economic efficiency and prosperity versus the equality of distribution of income. Returning to The Pie analogy (see paradox 2): The political right often tries to convince us that trying to share the Pie more equally inevitably results in a smaller Pie.

However, it does not take very advanced economic modeling to see that there are policies in which there is no such tradeoff. The very basics of economics suggest that some policies can both (a) increase total economic efficiency *and* (b) diminish unearned income differences.

1. Firstly, monopolies, privileges, and other rent-seeking opportunities polarize income and wealth differences but also decrease economic efficiency and productivity growth.
2. Secondly, involuntary unemployment means many people earning far less than they would want to and results in unrealized potential production and consumption, i.e., *wasted resources*.

Policies that eliminate (1) private monopolies, privileges, and other rent-seeking opportunities, (see paradoxes 10 and 11) as well as ones that (2) make supply meet demand better in the labor market on the individual level (see paradoxes 14 and 15) can simultaneously make the economy more efficient *and* fair.

Essentially the main solutions that our current market economy would need are:

1. Much higher taxes on the location value of real estate.
2. The elimination of other private monopolies (e.g. taking natural monopoly industries into public ownership.
3. The possibility of negative real interest rates, which can be achieved by either (i) eliminating physical cash or (ii) adopting a higher inflation target.
4. A proper fee on the government deposit guarantee.
5. Ensuring that people have the realistic opportunity to work less (in the medium term) without the fear of long-term unemployment.

The Root Bug hypothesis suggests that with these corrections, we could achieve a fairer, sustainable, and growth-independent economic system that allows just as much economic growth as people really want.

A more thorough analysis of the impacts of these solutions, the theories behind them, and potential issues in their implementation can be found in the book *Fixing the Root Bug*.[253]

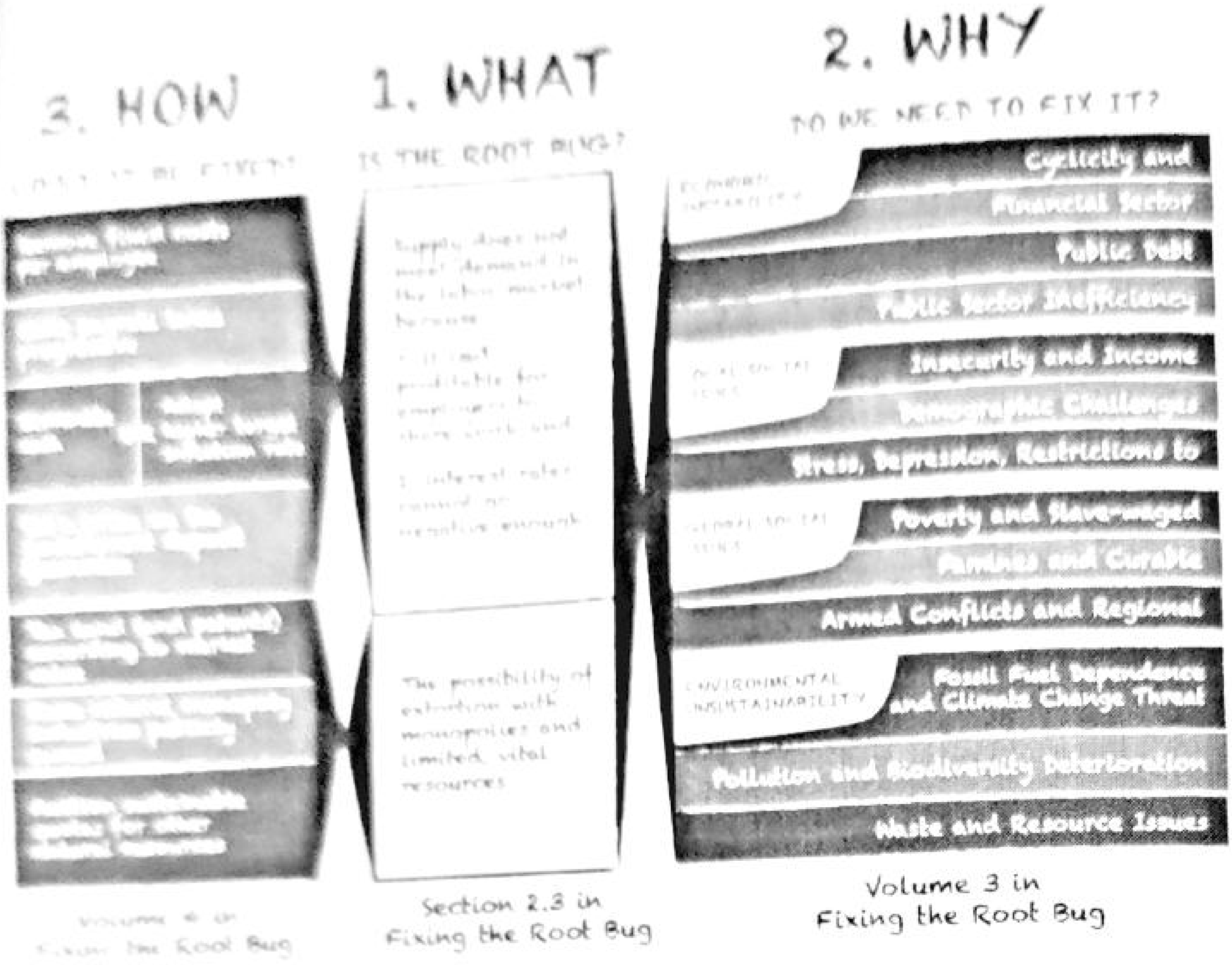
3. HOW
1. WHAT
IS THE ROOT BUG?
2. WHY
DO WE NEED TO FIX IT?
The possibility of extortion with monopolies and limited vital resources
ENVIRONMENTAL UNSUSTAINABILITY
Cyclicity and
Financial Sector
Public Debt
Public Sector Inefficiency
Insecurity and Income
Demographic Challenges
Stress, Depression, Restrictions to
Poverty and Slave-waged
Famines and Curable
Armed Conflicts and Regional
Fossil Fuel Dependence and Climate Change Threat
Pollution and Biodiversity Deterioration
Waste and Resource Issues
Section 2.3 in Fixing the Root Bug
Volume 3 in Fixing the Root Bug
Fixing the Root Bug

Image 14: **The structure of the Root Bug hypothesis.**

The Root Bug hypothesis and its "subbugs" are introduced more briefly in these *Root Bug in a Nutshell* videos:

Root Bug in a Nutshell 1/6: Land
http://rootbug.org/Ns1

Root Bug in a Nutshell 2/6: Money and Interest Intro
http://rootbug.org/Ns2

Root Bug in a Nutshell 3/6: The Zero Lower Bound
http://rootbug.org/Ns3

Root Bug in a Nutshell 4/6: The Free Deposit Guarantee
http://rootbug.org/Ns4

Root Bug in a Nutshell 5/6: The Work-Piling Bug
http://rootbug.org/Ns5

Root Bug in a Nutshell 6/6: Externalities and Wrap-Up
http://rootbug.org/Ns6

"If we already understand as much of the natural world as we ever will - if all of today's conventional ideas are already enlightened, and if everything has already been done - then there are no good answers. Contrarian thinking doesn't make any sense unless the world still has secrets left to give up." ... "Secrets about people are relatively underappreciated. Maybe that's because you don't need a dozen years of higher education to ask the questions that uncover them: What are people not allowed to talk about? What is forbidden or taboo?"

- Peter Thiel[254]

Endnotes

1 Kierkegaard 1985, p. 37

2 Robbins 1945, p. 16

3 "Incentive", Merriam-Webster dictionary, cited 15.7.2015, http://www.merriam-webster.com/dictionary/incentive

4 See paradox 1.

5 Levitt & Dubner 2005, p. 19-20

6 "Paradox", Merriam-Webster dictionary, cited 3.8.2015, http://www.merriam-webster.com/dictionary/paradox

7 Taleb 2012, p. 335

8 Sinclair 1994

9 *Levitt & Dubner 2014, p. 31-32*

10 Weber 1930

11 "Consumption", entry, Encyclopaedia Britannica, cited 2.8.2013, http://global.britannica.com/EBchecked/topic/134578/consumption

12 Keynes 1936, p. 37 & 70

13 "Tuberculosis", Wikipedia, cited 18.9.2015, https://en.wikipedia.org/wiki/Tuberculosis

14 Pinker 2007, p. 235-240

15 *Haidt 2006, p. 201*

16 *Gesell 1916, Part 3, Ch. 3*

17 Thaler 1985; Thaler 1999; Shefrin & Thaler 2004

18 *Fixing the Root Bug* has a broader chapter on human irrationality and the concept of value.

19 "Our hypothesis is that the function of reasoning is argumentative. It is to devise and evaluate arguments intended to persuade."... "Skilled arguers are ... not after the truth but after arguments supporting their view." (Mercier & Sperber 2011, p. 57)

20 Samuelson 1938

21 "We see then that that which determines the magnitude of the value of any article is the amount of labour socially necessary, or the labour time socially necessary for its production." (Marx 1887, p. 28)

22 "Price elasticity of demand", Investopedia, cited 17.7.2015, http://www.investopedia.com/terms/p/priceelasticity.asp

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24 Brynjolfsson 1993, p. 10

25 1916, Part 3, Ch. 2

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27 There's an appendix on this in at least the first versions of the *Fixing the Root Bug* and *The Guilt Economy*.

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29 Read 2011

30 "Those ten persons, therefore, could make among them upwards of forty-eight thousand pins in a day. Each person, therefore, making a tenth part of forty-eight thousand pins, might be considered as making four thousand eight hundred pins in a day. But if they had all wrought separately and independently, and without any of them having been educated to this peculiar business, they certainly could not each of them have made twenty, perhaps not one pin in a day…" (Smith 1776, Book I, Ch. 1)

31 "Competition" in a market economy essentially means providing alternatives, see paradox 13.

32 35:20->, Haidt, Jonathan, "The Rationalist Delusion in Moral Psychology", lecture, viewed 20.2.2014, http://www.youtube.com/watch?v=kJ1wQswRVaU

33 1916, Part 1, Ch. 2

34 "Total factor productivity", Wikipedia, cited 24.6.2015, https://en.wikipedia.org/?title=Total_factor_productivity

35 "Commensurable", The Free Dictionary by Farlex, cited 24.6.2015, http://www.thefreedictionary.com/commensurable

36 Baumol & Bowen 1966

37 "Moore's law" is the observation that, over the history of computing hardware, the number of transistors in a dense integrated circuit has doubled approximately every two years.

38 In fact, for basic staple foods price elasticity of demand might be negative. When poor people's basic foods get cheaper, the positive income effect of this might make them substitute the basic foods for more expensive foods of perceived higher quality. This is called the Giffen effect, and goods subject to such an effect are called Giffen goods.

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40 Jevons 1866, Ch. 7

41 Jevons 1866

42 Garrett 2014

43 "Substitution effect", Wikipedia, cited 25.6.2015, https://en.wikipedia.org/wiki/Substitution_effect

44 Jevons 1866, Ch.1

45 See paradox 1

46 An extreme case example of this is the cryptocurrency bitcoin, the limitedness of which is partly based on performing calculations that get harder for computers to crack if there is more hardware capacity "mining" new bitcoins. Essentially, mining bitcoins is a competition to waste energy! The higher the market value of bitcoins rises and the cheaper electricity gets, the more energy will be uselessly wasted in the mining competition. While bitcoin is promoted by fans as a "cheap" way to make transactions in terms of the direct fees involved, the *real costs* of bitcoin transactions are currently around $10 each, and have hit highs of almost $50.

- Gimein, Mark, "Virtual Bitcoin Mining Is a Real-World Environmental Disaster", Bloomberg,12th Apr 2013, cited 5.7.2015, http://www.bloomberg.com/news/

articles/2013-04-12/virtual-bitcoin-mining-is-a-real-world-environmental-disaster

“Cost per transaction”, chart, Blockchain.com, cited 5.7.2015, https://blockchain.info/charts/cost-per-transaction

47 Freire-Gonzalez & Puig-Ventosa 2015

48 “Green policies do not require significant public spending. Carbon pricing can raise revenues, while standards and regulations can change producer and consumer behaviour at little cost to the public purse.” … “[I]n many countries, even where climate policy exists, a major barrier to private investment in the green economy is a lack of confidence in key policy frameworks, such as a long-term carbon price, and the longevity and stringency of emissions and renewable energy targets. But this ‘policy risk’ resides in the hands of policy-makers.” (Zenghelis, 2012, p. 19 & 20)

49 “Write-off”, Investopedia, cited 24.6.2015, http://www.investopedia.com/terms/w/write-off.asp

50 Jevons 1866, Ch. 18

51 Fisher 1930, p. 29

52 “We see then that that which determines the magnitude of the value of any article is the amount of labour socially necessary, or the labour time socially necessary for its production.” (Marx 1887, p. 28)

In Marx’s theory of value, an increase in productivity *decreases* the value of the end product, as less labor is now “socially necessary” for producing it.

53 “Knightian Uncertainty”, Wikipedia, cited 25.6.2015, https://en.wikipedia.org/wiki/Knightian_uncertainty

54 “Capital”, Investopedia, cited 13.7.2015, http://www.investopedia.com/terms/c/capital.asp

55 “Interest on durable goods and interest on consumption-credit are like other kinds of interest an outgrowth of the higher valuation of present goods as against future goods.” – Ludwig von Mises, Human Action (1963, p. 526)

56 E.g. Rognlie 2014.

57 “Asset”, Investopedia, cited 13.7.2015, http://www.investopedia.com/terms/a/asset.asp

58 “Time preference may not always be a preference for present over future goods; it may, under certain conditions, be the opposite. Impatience may be and sometimes is negative!” (Fisher 1930, p. 29)

59 “In short, a risky income, if the risk applies evenly to all parts of the income stream, is equivalent to a low income, and, since a low income, as we have seen, tends to create a high impatience, risk, if distributed in time, uniformly or fairly so, tends to raise impatience.” (Fisher 1930, p. 32)

“There are, in general, eight main motives or objects of a subjective character which lead individuals to refrain from spending out of their incomes:

(i) To build up a reserve against unforeseen contingencies;” (Keynes 1936, p. 73)

60 “Time preference is a categorial requisite of human action. No mode of action can be thought of in which satisfaction within a nearer period of the future is not – other things being equal – preferred to that in a later period.” … “If he were not to prefer satisfaction in a nearer period of the future to that in a remoter period, he would never consume and so satisfy wants. He would always accumulate, he would never consume and enjoy. He would not consume today, but he would not consume

tomorrow either, as the morrow would confront him with the same alternative." (Mises 1963, p. 484)

61 E.g. Robert Murphy is one Austrian economist who presents clear example of cases where people can exhibit a "negative" time preference.

"For example, it might be that a certain man does not exhibit TP in sense (ii); that is, if all else were equal, he would be indifferent between a marginal present or future good. However, if in a particular scenario all else were not equal – if, e.g., he knew he would be very rich in the future compared to today – then the man quite reasonably could prefer a marginal present good to a future good; that is, he would exhibit TP in sense (i). Thus, we could say of this man that he does in this particular situation prefer present to future goods, but not that he does so as a general rule.

On the other hand, it might be that a certain woman does, as a general rule, prefer present to future goods; she thus exhibits TP in sense (ii). So if she knew she would be equally wealthy in the future as she is today, she would prefer a marginal present good." ... "Suppose that she knows she will be much poorer in the future. This effect can completely overwhelm her exogenous preference for the present, such that she actually prefers a marginal future good. This woman would thus exhibit TP in sense (ii) but not in sense (i)." ...

"Austrians should reject any theory of interest that deals only with 'real' phenomena, to the exclusion of money. A positive interest rate is simply a higher price for present money units versus future money units." (Murphy 2001, p. 2-3 & 22-23)

62 Mankiw 2004

63 "Profitability", Business Dictionary, cited 15.9.2015, http://www.businessdictionary.com/definition/profitability.html#ixzz3m4XTv2AO

64 "Profitable", Merriam-Webster Dictionary, cited 15.9.2015, http://www.merriam-webster.com/dictionary/profitable

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66 "Net Present Value - NPV", Investopedia, cited 13.7.2015, http://www.investopedia.com/terms/n/npv.asp

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68 Weber 1930, p. 15

69 "There is a certain rate of interest on loans which is neutral in respect to commodity prices, and tends neither to raise nor to lower them. (1936 translation from 1898 text, p.102.)"

- Williams, John C., "The Natural Rate of Interest", Federal Reserve Bank of San Francisco Economic Letter, cited 3.8.2015, http://www.frbsf.org/economic-research/publications/economic-letter/2003/october/the-natural-rate-of-interest/

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71 Parkkinen, Tuure, "Piketty and Rognlie Forgot about Money", EarthSharing.org, cited 13.7.2015, http://earthsharing.org/2015/05/piketty-rognlie-forgot-money/

72 Gesell 1916, Introduction

73 Keynes 1936, p. 71

74 Schiff P 2010, p. xx

75 Schiff 1985

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77 "It is unnecessary to demonstrate that money is not a consumption good [and i]t seems equally incorrect to call it a production good." (Mises 1912, p. 79)

"…money has no use-value at all, but only subjective exchange-value." (Mises 1912, p. 97)

"Money is only useful for exchange value…" (Rothbard 1963, p. 28)

78 "Short (or Short Position)", Investopedia, cited 13.7.2015, http://www.investopedia.com/terms/s/short.asp

79 (Kauko 2011, p. 7)

80 Mises 1912, p. 97

81 Mitchell-Innes 1914

82 "Peter Schiff - How an Economy Grows & Why it Crashes", video blog, 30th Apr 2014, viewed 25.6.2015, https://www.youtube.com/watch?v=U1v2bWRSCwk

83 My other book on our outdated economic morality, *The Guilt Economy*, goes into more detail on how our emotional fixations and moral biases sustain mathematically self-contradictory perceptions of how the economy works.

84 0:15->, 2012, "Is mercantilism doomed to fail 4/5?" presentation by Joseph Stiglitz, viewed 3.3.2013, http://www.youtube.com/watch?v=D207fSLnxHk

85 Eggertson 2010

86 "Capital Intensive", Investopedia, cited 13.7.2015, http://www.nvestopedia.com/terms/c/capitalintensive.asp

87 "Fiscal Policy", Investopedia, cited 17.7.2015, http://www.investopedia.om/terms/f/fiscalpolicy.asp

88 Mitchell, Bill, "Functional finance and modern monetary theory", 1st Nov 009, Billy Blog, cited 17.7.2015, http://bilbo.economicoutlook.net/blog/?p=5762

89 "If the rate of interest were so governed as to maintain continuous full mployment, virtue would resume her sway;– the rate of capital accumulation would epend on the weakness of the propensity to consume. Thus, once again, the tribute at classical economists pay to her is due to their concealed assumption that the rate interest always is so governed." (Keynes 1936, p. 76)

"Thus … it is broadly true to say that the governor of the whole system is the rate discount. For this is the only rate which is directly subject to the will and *fiat* of the ntral authorities, so that it is from this that induced changes in all other factors must w." (Keynes 1930, p. 211)

90 "For my own part I am now somewhat skeptical of the success of a merely netary policy directed towards influencing the rate of interest. I expect to see the te, which is in a position to calculate the marginal efficiency of capital-goods on g views and on the basis of the general social advantage, taking an ever greater ponsibility for directly organising investment; since it seems likely that the ctuations in the market estimation of the marginal efficiency of different types of ital, calculated on the principles I have described above, will be too great to be set by any practicable changes in the rate of interest." (Keynes 1936, p. 104)

91 Smith 1776, Book IV, Ch. 1

92 Fisher 1930

93 The "principle of clearing the market" and the "principle of repayment". (Fisher 1930, p. 45)

94 The market rate of interest will be such as will just clear the market, that is, will make the loans and borrowings or, more generally expressed, purchases and sales of income equal for each period of time." (Fisher 1930, p. 45)

95 "Federal funds rate", Investopedia, cited 26.5.2015, http://www.investopedia.com/terms/f/federalfundsrate.asp

96 Paying interest on retail banks' deposits on their accounts at the central bank is a relatively new policy tool, adopted e.g. by the Fed in 2008 to encourage retail banks to maintain higher reserves in order to secure interbank liquidity.

- Schenk, Robert, "Cybereconomics" – "The Federal Reserve and Monetary Policy", cited 7.11.2013, http://ingrimayne.com/econ/Banking/FedMonPol.html

97 "Again, this postponing of spending, i.e. speculation, would accelerate the price deflation to the expected level and speed up adjustments." (Bagus 2006, p. 12)

98 "[T]o the extent that [deflation] *is* anticipated, [entrepreneurs] will hold money rather than buy factors. This will *immediately* lower factor prices to their expected future levels..." (Rothbard 1962, p. 794, *italics* in original)

99 Keynes 1936, p. 146

100 12:35->, Watts, Alan, "Money and Guilt", lecture/speech, viewed 16.1.2014, http://www.youtube.com/watch?v=c7tlaF3dv_M

101 "If the work of money is circulation, then money is always "idle" because transactions are quasi-instantaneous. … The transfer [of money] itself occupies a mere moment whilst the services which flow from the possession of money are continuous over time. The essence of all these services is availability." (Hutt 1975)

102 "The Goldsmith's Tale", animation, viewed 26.6.2015, https://www.youtube.com/watch?v=mII9NZ8MMVM

"The Collapse of The American Dream Explained in Animation", animation, viewed 26.6.2015, https://www.youtube.com/watch?v=3HdmA3vPbSU

103 "A most important truth about money now emerges from our discussion: money is a commodity. Learning this simple lesson is one of the world's most important tasks. So often have people talked about money as something much more or less than this. Money is not an abstract unit of account, divorceable from a concrete good; it is not a useless token only good for exchanging; it is not a 'claim on society'; it is not a guarantee of a fixed price level. It is simply a commodity. It differs from other commodities in being demanded mainly as a medium of exchange." (Rothbard 1963, p. 9)

104 Mankiw 2004

105 "Velocity Of Money", Investopedia, cited 6.7.2015, http://www.investopedia.com/terms/v/velocity.asp

106 As Bryan Caplan puts it, "[money v]elocity is the inverse of the percentage of income that people keep in the form of money", and hence it "is therefore essentially a measure of income-adjusted money demanded", as in *demand for holding* money.

- Caplan Bryan, "What Is Money Velocity?" Library of Economics and Liberty – EconLog, 16th Nov 2009, cited 7.7.2015, http://econlog.econlib.org/archives/2009/11/what_is_money_v.html

107 "There are, in general, eight main motives or objects of a subjective

character which lead individuals to refrain from spending out of their incomes: (i) To build up a reserve against unforeseen contingencies;" (Keynes 1936, p. 43)

"The uncertainty of the future makes it seem advisable to hold a larger or smaller part of one's possessions in a form that will facilitate a change from one way of using wealth to another, or transition from the ownership of one good to that of another, in order to preserve the opportunity of being able without difficulty to satisfy urgent demands that may possibly arise in the future for goods that will have to be obtained by way of exchange." (Mises 1912, p. 147)

108 "The psychological time-preferences of an individual require two distinct sets of decisions to carry them out completely. The first is concerned with that aspect of time-preference which I have called the propensity to consume, which, operating under the influence of the various motives set forth in Book III, determines for each individual how much of his income he will consume and how much he will reserve in some form of command over future consumption.

But this decision having been made, there is a further decision which awaits him, namely, in what form he will hold the command over future consumption which he has reserved, whether out of his current income or from previous savings. Does he want to hold it in the form of immediate, liquid command (i.e. in money or its equivalent)? Or is he prepared to part with immediate command for a specified or indefinite period, leaving it to future market conditions to determine on what terms he can, if necessary, convert deferred command over specific goods into immediate command over goods in general? In other words, what is the degree of his liquidity-preference—where an individual's liquidity-preference is given by a schedule of the amounts of his resources, valued in terms of money or of wage-units, which he will wish to retain in the form of money in different sets of circumstances?" (Keynes 1936, p. 106)

109 "With today's technology, you could buy a cup of coffee by swiping a card or tapping a cell phone, selling two dollars and fifty cents of an S&P 500 fund, and crediting the coffee seller's two dollars and fifty cents mortgage-backed security fund. If money (reserves) are involved at all - if the transaction is not simply netted among intermediaries - reserves are held for milliseconds." (Cochrane 2014, p. 3-4)

110<?>

111 A further complication to the Quantity Theory is that, in our current monetary system, "money" is not an explicit asset class. As mentioned (see paradox 6), money is credit, and what counts as "money" depends on what *monetary aggregate* we are talking about. Base money, MB (or M0), refers to physical cash and central bank money. M1 usually includes all liquid, risk-free credit held by non-bank entities: liquid bank deposits and cash that is not held by retail banks as reserves. Other aggregates from M2 to M4 (M7 in some countries) include also other, less liquid forms of credit.

112 "Japan Money Supply M1", Trading Economics, cited 27.6.2015, http://www.tradingeconomics.com/japan/money-supply-m1

"Japan Money Supply M3", Trading Economics, cited 27.6.2015, http://www.tradingeconomics.com/japan/money-supply-m3

113 "Japan GDP growth rate", Trading Economics, cited 27.6.2015, http://www.tradingeconomics.com/japan/gdp-growth

114 "Japan Inflation Rate", Trading Economics, cited 27.6.2015, http://www.tradingeconomics.com/japan/inflation-cpi

115 Keynes 1923, p. 32

116 "Correction", Investopedia, cited 13.7.2015, http://www.investopedia.com/terms/c/correction.asp

117 "Hyperinflation in the Weimar Republic", Wikipedia, cited 14.7.2015, https://en.wikipedia.org/wiki/Hyperinflation_in_the_Weimar_Republic#Hyperinflation

"Hyperinflation in Zimbabwe", Wikipedia, cited 14.7.2015, https://en.wikipedia.org/wiki/Hyperinflation_in_Zimbabwe

118 From 2003 to 2015, the M1 and M3 monetary aggregates have grown approximately by ¥200 trillion, while Japan's national debt has grown by more than ¥400 trillion.

119 See paradox 9

120 E.g. Murray N. Rothbard defines "inflation" as:

"*Inflation may be defined as any increase in the economy's supply of money not consisting of an increase in the stock of the money metal*. Fractional reserve banks, therefore, are inherently inflationary institutions." (Rothbard 1963, p. 41, *italics* in original)

121 "Core inflation", Investopedia, cited 13.7.2015, http://www.investopedia.com/terms/c/coreinflation.asp

122 As Ben Bernanke describes the importance of "anchoring" inflation expectations:

"The public's understanding of the Federal Reserve's commitment to price stability helps to anchor inflation expectations and enhances the effectiveness of monetary policy, thereby contributing to stability in both prices and economic activity. Indeed, the longer-run inflation expectations of households and businesses have remained very stable over recent years. The Federal Reserve has not followed the suggestion of some that it pursue a monetary policy strategy aimed at pushing up longer-run inflation expectations. In theory, such an approach could reduce real interest rates and so stimulate spending and output." … "The anchoring of inflation expectations is a hard-won success that has been achieved over the course of three decades, and this stability cannot be taken for granted. Therefore, the Federal Reserve's policy actions as well as its communications have been aimed at keeping inflation expectations firmly anchored."

-Reddy, Sudeep, "Sen. Vitter Presents End-of-Term Exam For Bernanke", Wall Street Journal, 17th Dec 2009, cited 1.7.2013, http://blogs.wsj.com/economics/2009/12/17/sen-vitter-presents-end-of-term-exam-for-bernanke/

123 E.g. the high commitment to employers and strong work ethic of the Korean workers likely play a big role in South Korea being able to maintain a 3 % unemployment rate without notable inflation pressures.

- Womack, Brian, "Asian Work Ethic Is Impressive", Dayton Business Journal, Opinion, 26th April 2004, cited 1.6.2013, http://www.bizjournals.com/dayton/stories/2004/04/26/editorial2.html?page=all

- "South Korea unemployment rate", Trading Economics, cited 14.7.2014, http://www.tradingeconomics.com/south-korea/unemployment-rate

124 Hutt 1975

125 This is e.g. how the monetary-reform-rooting Positive Money team likes to explain real estate bubbles.

"Most of this money goes into house price bubbles and gambling on the financial markets. This has led to … to house prices that very few people can afford." … "[The committee] would ensure the right amount of money is created: not enough to cause bubbles and a financial crisis…"

0:16-> & 2:08->, "Could These 3 Simple Changes to Banking Fix the Economy?" animation, Positive Money, viewed 2.7.2015, https://youtu.be/eHQ7wvWzUW0

126 See intro chapter III.

127 "Summer Of Stock Market Discontent as Capital Flees to Precious Metals", The Market Oracle, 8th Jun 2009, cited 15.7.2015, http://www.marketoracle.co.uk/Article11183.html

128 Mead, Walter Russell, "China Stocks Swoon Despite Orders From Beijing", The American Interest, 7th Jul 2015, cited 15.7.2015, http://www.the-american-interest.com/2015/07/07/china-stocks-swoon-despite-massive-support/

129 Rosenbaum, Eric, "Investors dumping US stocks for better opportunities abroad", CNBC, 4th May 2015, cited 15.7.2015, http://www.cnbc.com/2015/05/04/investors-dumping-us-stocks-for-better-opportunities-abroad.html

130 "Trading volume definition", Nasdaq, cited 2.7.2015, http://www.nasdaq.com/investing/glossary/t/trading-volume

131 *ceteris paribus* = "everything else remaining as it was".

132 "Book value", Investopedia, cited 3.7.2015, http://www.investopedia.com/terms/b/bookvalue.asp

133 "Tax Shield", Investopedia, cited 15.7.2015, http://www.investopedia.com/terms/t/taxshield.asp

134 "Oman asunnon myyntivoiton verotus", Vero.fi, cited 15.7.2015, https://www.vero.fi/fi-FI/Syventavat_veroohjeet/Henkiloasiakkaan_tuloverotus/Luovutusvoitot_ja_tappiot/Oman_asunnon_myyntivoiton_verotus(12050)

135 "ASP account", Nordea, cited 15.7.2015, http://www.nordea.fi/personal+customers/savings/savings+accounts/asp+account/52387.html

136 It is hard to find a description of quantitative easing that would not be at least partly faulty or misleading. The Bank of England video on it is otherwise good and descriptive, except for the part starting 2:14, which suggests that bank deposits somehow facilitate "lending":

"There's another way The Bank [of England]'s purchases of assets could put more money into the economy: Those selling assets to The Bank of England deposit more money into their bank accounts. So commercial banks have more funds, which they can use to finance new loans."

- "What is Quantitative Easing?" The Bank of England, cited 3.7.2015, http://www.bankofengland.co.uk/monetarypolicy/pages/qe/default.aspx

- "Quantitative Easing – How It Works", The Bank of England, viewed 5.7.2015, https://www.youtube.com/watch?v=J9wRq6C2fgo

137 "Yield", Investopedia, cited 3.7.2015, http://www.investopedia.com/terms/y/yield.asp

138 "The Effect of Recent ECB Policy on Inflation Expectations", Federal Reserve Bank of St. Louis, 12th Feb 2015, cited 3.7.2015, https://www.stlouisfed.org/on-the-economy/2015/february/the-effect-of-recent-ecb-policy-on-inflation-expectations

139 2:05:55->, "Liberté, Égalité, Fragilité: Opening Plenary", lecture, viewed 8.6.2015, https://www.youtube.com/watch?v=Fg6UwAQJUVo

140 "But this proportion [of total produce to the number of those who are to consume it] must in every nation be regulated by two different circumstances: first,

by the skill, dexterity, and judgment with which its labour is generally applied; and, secondly, by the *proportion between the number of those who are employed in useful labour, and that of those who are not so employed*. Whatever be the soil, climate, or extent of territory of any particular nation, the abundance or scantiness of its annual supply must, in that particular situation, depend upon those two circumstances." (*italics* added. Smith 1776, p. 8)

It is noteworthy (note the italics above), that even Smith assumed the amount of work done per person to be a constant – that a person is either "employed" or not employed. In other words, the assumption that the unit of labor is a human being dates back to Smith's times. (See paradox 14)

141 Smith 1776, p. 141

142 Of course, higher capital intensity does not always mean higher labor productivity.

143 Salmela 2012

144 George 1912, p. 175

145 "Rent-seeking", Investopedia, cited 5.7.2015, http://www.investopedia.com/terms/r/rentseeking.asp

146 "Economic rent", Investopedia, cited 3.6.2015, http://www.investopedia.com/terms/e/economicrent.asp

147 Geoghegan, Tom, "Why is broadband more expensive in the US?" BBC News, cited 5.7.2015, http://www.bbc.com/news/magazine-24528383

148 "Why is the rent so high?" EarthSharing.org, viewed, 3.6.2015, https://www.youtube.com/watch?v=7HZANYxnkWk

149 "Ambassador Bridge", Wikipedia, cited 21.9.2015, https://en.wikipedia.org/wiki/Ambassador_Bridge

150 E.g Gesell 1916, Part 5, Ch. 2;

151 "Robber baron", Wikipedia, cited 21.9.2015, https://en.wikipedia.org/wiki/Robber_baron

152 Borovan, Nate, "Since uberX Launched, the Price of a Boston Taxi Medallion Has Only Gone Up", BostInno, 6th Jun 2014, cited 3.6.2015, http://bostinno.streetwise.co/2014/06/06/how-much-do-boston-taxi-medallions-cost-2/

153 "The Uber-Taxi Medallion Ripple Effect", PYMNTS, 14th Jan 2015, cited 3.6.2015, http://www.pymnts.com/in-depth/2015/the-uber-taxi-medallion-ripple-effect/#.VW7nTGSeAXA

154 - Griswold, Alison, "Just Said an Uber Driver Is an Employee. That's Uber's Worst Nightmare", Slate, cited 5.7.2015, http://www.slate.com/blogs/moneybox/2015/06/17/uber_drivers_ruled_employees_by_california_labor_commission.html

- Dillet, Romain, "Uber France Leaders Arrested For Running Illegal Taxi Company", TechCrunch, cited 5.7.2015, http://techcrunch.com/2015/06/29/uber-france-leaders-arrested-for-running-illegal-taxi-company/

155 George 1912, p. 200

156 Adams 2015, p. 9

157 Casselman, Ben, "Today, eSports' biggest tournaments rival practically any sporting event. The League of Legends Championship sold out Staples Center in 2013, then sold out the 40,000-seat World Cup Stadium in Seoul a year later while drawing an online audience of 27 million -- more than the TV viewership for the final

round of the Masters."

"Resistance is futile: eSports is massive ... and growing", ESPN, 12th Jun 2015, cited 3.8.2015, http://espn.go.com/espn/story/_/id/13059210/esports-massive-industry-growing

158 Peltola & Väänänen 2007, p. 16

159 "The Georgist argument that property owners should have to pay for capitalizing on an externality they did not create (land) is refuted by the fact that the externalities are created every day by surrounding property owners and to punish them as a class is illogical."

Peterson, Jeff II & Michie, Thomas J. VII, "Feudalism Disguised as Egalitarianism: A Critique of Georgism", Liberty.me, 23rd Apr 2014, cited 8.6.2015, https://wti.liberty.me/feudalism-disguised-as-egalitarianism-a-critique-of-georgism/

160 As Ed Glaeser says on this Freakonomics podcast:

"The problem is that my welfare function depends critically on having people who are smarter than I am around me. And would need to make sure that my kids also had a lot of people who are smarter than they were around them."

32:42->, Dubner, Stephen J., "Could the Next Brooklyn Be ... Las Vegas", Freaconomics radio podcast, 11th May 2015, listened to on 5.7.2015, http://freakonomics.com/2015/05/11/could-the-next-brooklyn-be-las-vegas-a-new-freakonomics-radio-podcast/

161 Yglesias, Matthew, "San Francisco Is Great—They Should Make More of It", Slate, 11th Apr 2013, cited 16.7.2015, http://www.slate.com/blogs/moneybox/2013/04/11/san_francisco_zoning_needs_more_density_and_tall_buildings.html

162 Avent, Ryan, "The spectre haunting San Francisco", The Economist, 16th Apr 2014, cited 15.7.2015, http://www.economist.com/blogs/freeexchange/2014/04/housing-markets

163 "The equal right of all men to the use of land is as clear as their equal right to breathe the air – it is a right proclaimed by the fact of their existence. For we cannot suppose that some men have a right to be in this world, and others no right." (George 1912, p. 200)

164 "Hence, all legitimate property-right derives from every man's property in his own person, as well as the 'homesteading' principle of unowned property rightly belonging to the first possessor." (Rothbard 1998, p. 60)

165 "Hedge", Investopedia, cited 5.7.2015, http://www.investopedia.com/terms/h/hedge.asp

166 "Detroit Home Prices & Values", Zillow, cited 15.7.2015, http://www.zillow.com/detroit-mi/home-values/

167 "HS: Näin käy kunnalle, kun paperitehdas suljetaan", Taloussanomat, 29th Sep 2012, cited 16.7.2015, http://www.taloussanomat.fi/tyomarkkinat/2012/09/29/hs-nain-kay-kunnalle-kun-paperitehdas-suljetaan/201238874/12

168 Crook, Jordan, "Nokia Confirms Close Of Last Finnish Handset Factory: 780 Job Cuts To Follow", TechCrunch, 27th Jul 2012, cited 16.7.2015, http://techcrunch.com/2012/07/27/nokia-confirms-close-of-last-finnish-handset-factory-780-job-cuts-to-follow/

169 Ercanbrack, Anna, "Lines go silent in Finnish town of Salo as Microsoft shuts Nokia phone unit", Reuters, 16th Jul 2015, cited 16.7.2015,

170 "Real Estate", Investopedia, cited 5.7.2015, http://www.investopedia.

com/terms/r/realestate.asp

171 Nydahl, Niklas, "Land Value Tax and Basic Income", viewed 5.7.2015, https://www.youtube.com/watch?v=JqlOCoOgQ7E

172 Adams 2015, p. 98

173 George 1887

174 "Pied-à-terre", Merriam-Webster, cited 3.8.2015, http://www.merriam-webster.com/dictionary/pied-%C3%A0-terre

175 Dow, Aisha, "'Ghost tower' warning for Docklands after data reveals high Melbourne home vacancies", The Age, 12th Nov 2014, cited 5.7.2015, http://www.theage.com.au/victoria/ghost-tower-warning-for-docklands-after-data-reveals-high-melbourne-home-vacancies-20141111-11kkxz.html

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177 Salmela 2012, p. 33

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179 Smith 1776, p. 233.

180 "Monopoly", Investopedia, cited 17.6.2015, http://www.investopedia.com/terms/m/monopoly.asp

181 George 1949, p. 277

182 - Raunio, Helena, "Seuraava Nokia - Jussi Pesonen nostaisi Suomen biotalouden tiennäyttäjäksi", Tekniikka & Talous, 14th Nov 2014, cited 17.7.2015, http://www.tekniikkatalous.fi/talous_uutiset/2014-11-14/Seuraava-Nokia---Jussi-Pesonen-nostaisi-Suomen-biotalouden-tienn%C3%A4ytt%C3%A4j%C3%A4ksi-3250937.html

- Pohjala, Pauliina, "Sipilä: Ilmastonmuutoksen ratkaisu on uusi Nokia", Suomenmaa, 11th Nov 2014, cited 17.7.2015 http://www.suomenmaa.fi/etusivu/7184438.html

- Heikkinen, Mikko-Pekka, "Onko tässä uusi Nokia?" Helsingin Sanomat - kuukausiliite, 6th Dec 2014, cited 17.7.2015, http://www.hs.fi/kuukausiliite/a1417699634094

183 Chang 2010, p. 125-126 & 190

184 Smith 1776, p. 233.

185 Baker Samuel L., "Monopoly Price and Output", SamBaker.com - Economics Interactive Tutorial, cited 17.7.2015, http://sambaker.com/econ/monopoly/mon.html

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188 Thiel 2014, p. 24-25 & 33

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194 “Amazon’s ‘predatory pricing’ questioned”, CNBC, 30th Jun 2014, cited 4.7.2015, http://www.cnbc.com/id/101799842

195 “Regulatory capture”, Investopedia, cited 17.7.2015, http://www.investopedia.com/terms/r/regulatory-capture.asp

196 Booth 2004, p. 153

197 PwC 2012, p. 3-4

198 Rubin, Jeff, “How High Oil Prices Will Permanently Cap Economic Growth”, Bloomberg News, 24th Sep 2014, cited 8.9.2014, http://www.bloomberg.com/news/2012-09-23/how-high-oil-prices-will-permanently-cap-economic-growth.html

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rootbug.org/b101

201 “Dependency ratio”, Investopedia, cited 4.7.2015, http://www.investopedia.com/terms/d/dependencyratio.asp

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203 “Best Alternative To A Negotiated Agreement - BATNA”, Investopedia, cited 5.7.2015, http://www.investopedia.com/terms/b/best-alternative-to-a-negotiated-agreement-batna.asp

204“ Deadweight loss”, Investopedia, cited 5.7.2015, http://www.investopedia.com/terms/d/deadweightloss.asp

205 Taleb 2012, p. 84

206 One might argue that the taxi business is quite cyclical in some areas: Economic downturns and insecurity can reduce people’s use of taxi services significantly and hence also lower drivers’ long-term incomes. Maybe a sole trader hairdresser would be a better example.

207 Philips & Eamets 2007, p. 7

208 Taleb 2012, p. 5-6

209 EIF-1 2013

210 Hellsten 2008

211 Moodie, Alison, “Hillary Clinton criticises the Uber business model for exploiting workers”, The Guardian, 14th Jul 2015, cited 17.7.2015, http://www.theguardian.com/sustainable-business/2015/jul/14/hillary-clinton-criticises-the-uber-business-model-for-exploiting-workers

212 Bliss, Sam, “The sharing economy is bullsh!t. Here’s how we can take it

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217 0:51->, Friedman, Milton, "Imports, Exports & Exchange Rates", viewed 1.8.2015, https://www.youtube.com/watch?v=c9STBcacDIM

218 "The attention of government was turned away from guarding against the exportation of gold and silver to watch over the balance of trade as the only cause which could occasion any augmentation or diminution of those metals. From one fruitless care it was turned away to another care much more intricate, much more embarrassing, and just equally fruitless. The title of Mun's book, England's Treasure in Foreign Trade, became a fundamental maxim in the political œconomy, not of England only, but of all other commercial countries." (Smith 1776, Book IV, Ch. 1)

219 "Mercantilism", Investopedia, cited 5.7.2015, http://www.investopedia.com/terms/m/mercantilism.asp

220 This arises from the three balance identity: $(S - I) + (M - X) + (T - G) = 0$, where S is saving, I is real investment, M is imports, X is exports, G is government spending and investment, and T is government income (taxation). The net debt of the whole economy is a sum of its private sector's debt and its public sector's debt. Hence the public debt can only fall if the private sectors takes on debt in net or the national economy overall reduces its net external debts (i.e., accumulates net foreign assets).

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"[W]e have to get rid of too big to fail. If I was sitting in any other seat other than mine, I would say, 'you should never have to pay if J.P. Morgan fails.' You need a way to bankrupt – and I prefer bankruptcy. It should be called 'minimally damaging bankruptcy for big dumb banks' – as opposed to this vague concept of 'orderly liquidation or resolution.' Kind of sounds like you are resolving us but we may still be around." … "It needs specialized stuff, 'cause it's just like in a hospital, when they go bankrupt you can't turn the lights off, because they may be operating. In a financial company all you need is that the money keeps on running through the system – doesn't get locked up. It could be done. In fact [it's been] done quite successfully by the FDIC for a long period of time." … "The regulators say, 'If J.P. Morgan starts to fail and they file chapter 14, here's what happens: The money keeps on moving, the equity holders and the unsecured holders pay everything."

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Even back in the 1990's, regulators would privately complain of the difficulty of retaining any staff capable of understanding the rapidly evolving derivatives market. Research assistants with one year of experience working on derivatives issues would get bid away by the private sector at salaries five times what the government could pay." …

"Legislative complexity is growing exponentially in parallel. In the United States, the Glass-Steagall Act of 1933 was just 37 pages and helped to produce financial stability for the greater part of seven decades. The recent Dodd-Frank Wall Street Reform and Consumer Protection Act is 848 pages, and requires regulatory agencies to produce several hundred additional documents giving even more detailed rules. Combined, the legislation appears on track to run 30,000 pages."

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"There are only two direct consequences of debt: The principal payments and the interest expense. Other consequences flow from these. The more the government pays in interest, the less able it is to provide services that people need. This means that the government needs to take advantage of low interest rates by paying down as much of the national debt as it can – while there's still time."

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Acknowledgments

This book owes its existence mainly to all those awesome people who persistently complained that they would love to read more of my writing - but not as much as the 439 929 words of Fixing the Root Bug. (Modularity might work in theory, but in our physical reality, 1.5 kg is just a bit too much to carry around. I've heard FtRB even makes your Kindle heavier.)

Many thanks to Sampsa Fabritius for bashing my first, overly structured and theoretical screenplay for this shorter book and for arranging the publishing event.

Thanks to Martin Adams for setting an inspiring example of a shorter book on important issues with his remarkable *Land*.

My sincere gratitude to Esa-Pekka Mattila, Timo Ilomäki, and Elisa Parkkinen for thorough comments on almost the whole manuscript.

Thanks also to Tero Jaakkola, Thomas Miyauchi, Antti Jokinen, Ville Heikkinen, Liisa Kallio, Pessi Marttunen, and others for useful commentary on selected paradoxes.

And of course to everyone without whom I couldn't have done much of the Root Bug project, including Matic Jesenovec, Joonas Kaski, Matias Piiparinen, Juan Duarte Regino, Jukka Virkkunen, and Marko Rintamäki.

As always, refer to Fixing the Root Bug for more acknowledgments.

CAPITALISM CAN BE FIXED

- Price is not a good measure of value,
- investments can be profitable at a loss,
- too much saving can make us poorer,
- our economies' current growth depe[illegible] is the biggest obstacle to economic gr[illegible]
- capital income taxes are not very effe[illegible] at reducing the profits of investors,
- taxing land value can lower rents,
- income differences have little to do with productivity,
- inflation has little to do with the quantity of money, and
- there is no conflict between flexibility and security.

This book bashes the myths of both the political left and the right - mercilessly exposing the assumptions, mental images, and moral biases behind economic theories and the claimed effects of different policies.

Whether you are a policy maker or just want some fresh perspective and arguments for kitchen table discussions, this book won't leave you cold.

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$(1+i) = (1+r)(1+\pi)$
$\approx 1 + r + \pi$